

Operating Manual

AMAZONE

ZG-B 5500 Precis
ZG-B 8200 Precis

Fertiliser spreader



MG3134
BAG002.3 06.10
Printed in Germany



Please read this operating
manual before first
commissioning.
Keep it in a safe place
for future use.

en



Reading the instruction

Manual and following it should seem to be inconvenient and superfluous as it is not enough to hear from others and to realize that a machine is good, to buy it and to believe that now everything should work by itself. The person in question would not only harm himself but also make the mistake of blaming the machine for possible failures instead of himself. In order to ensure success one should enter the mind of a thing, make himself familiar with every part of the machine and get acquainted with how it's handled. Only in this way could you be satisfied both with the machine and with yourself. This goal is the purpose of this instruction manual.

Leipzig-Plagwitz 1872. Rud. Sark.

Identification data

Manufacturer: AMAZONEN-WERKE
H. DREYER GmbH & Co. KG

Machine Ident. No.:

Type: **ZG-B Precis**

Permissible system pressure (bar) Maximum 200 bar

Year of manufacture:

Factory:

Basic weight (kg):

Permissible total weight (kg):

Maximum load (kg):

Manufacturer's address

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Spare part orders

Spare parts lists are freely accessible in the spare parts portal at www.amazone.de.
Please send orders to your AMAZONE dealer.

Formalities of the operating manual

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Compilation date: 06.10

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Foreword

Foreword

Dear Customer,

You have chosen one of the quality products from the wide product range of AMAZONEN-WERKE, H. DREYER GmbH & Co. KG. We thank you for your confidence in our products.

On receiving the machine, check to see if it was damaged during transport or if parts are missing. Using the delivery note, check that the machine was delivered in full including the ordered special optional equipment. Damage can only be rectified if problems are signalled immediately!

Before first commissioning, read and understand this operating manual, and particularly the safety information. Only after careful reading will you be able to benefit from the full scope of your newly purchased machine.

Please ensure that all the machine operators have read this operating manual before commissioning the machine.

Should you have problems or queries, please consult this operating manual or give us a call.

Regular maintenance and timely replacement of worn or damaged parts increases the lifespan of your machine.

User evaluation

Dear Reader,

We update our operating manuals regularly. Your suggestions for improvement help us to create ever more user-friendly manuals. Send us your suggestions by fax.

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1 User Information

The User Information section provides information on use of the operating manual.

1.1 Purpose of the document

This operating manual

- Describes the operation and maintenance of the machine.
- Provides important information on safe and efficient handling of the machine.
- Is a component part of the machine and should always be kept with the machine or the traction vehicle.
- Keep it in a safe place for future use.

1.2 Locations in the operating manual

All the directions specified in the operating manual are always seen from the direction of travel.

1.3 Diagrams used

Operator control action and responses

Actions to be carried out by the operator are given as a numbered list. It is important that the sequence of steps is observed. The responses for each operator control action are given by an arrow. Example:

1. Operator control action step 1
→ Machine response to operator control action 1
2. Operator control action step 2

Lists

Lists without an essential order are shown as a list with bullets. Example:

- Point 1
- Point 2

Number items in diagrams

Numbers in round bracket refer to items in diagrams. The first number refers to the diagram and the second number to the item in the figure.

Example: (Fig. 3/6)

- Figure 3
- Item 6

2 General safety instructions

This section contains important information on safe operation of the machine.

2.1 Obligations and liability

Comply with the instructions in the operating manual

Knowledge of the basic safety information and safety regulations is a basic requirement for safe handling and fault-free machine operation.

Obligations of the operator

The operator is obliged only to let those people work with/on the machine who

- Are aware of the basic workplace safety information and accident prevention regulations.
- Have been trained in working with/on the machine.
- Have read and understood this operating manual.

The operator is obliged

- To keep all the warning symbols on the machine in a legible state.
- To replace damaged warning symbols.

Obligations of the user

Before starting work, anyone charged with working with/on the machine is obliged

- To comply with the basic workplace safety instructions and accident prevention regulations.
- To read and follow the "General safety information" section of this operating manual.
- To read the section "Warning symbols and other labels on the machine" (page 16) of this operating manual and to follow the safety instructions represented by the warning symbols when operating the machine.
- If you still have queries, please contact the manufacturer.

General safety instructions

Risks in handling the machine

The machine has been constructed to the state-of-the art and the recognised rules of safety. However, there may be risks and restrictions which occur when operating the machine

- For the health and safety of the operator or third persons,
- For the machine,
- For other goods.

Only use the machine

- For the purpose for which it was intended.
- In a perfect state of repair.

Eliminate any faults immediately which could impair safety.

Guarantee and liability

Our "General conditions of sales and delivery" are always applicable. These shall be available to the operator, at the latest on the completion of the contract. Guarantee and liability claims for damage to people or goods will be excluded if they can be traced back to one or more of the following causes:

- Improper use of the machine.
- Improper installation, commissioning, operation and maintenance of the machine.
- Operation of the machine with defective safety equipment or improperly attached or non-functioning safety equipment.
- Non-compliance with the instructions in the operating manual regarding commissioning, operation and maintenance.
- Independently-executed constructive changes to the machine.
- Insufficient monitoring of machine parts which are subject to wear.
- Improperly executed repairs.
- Disasters through the impact of foreign bodies and acts of God.

2.2 Representation of safety symbols

Safety instructions are indicated by the triangular safety symbol and the highlighted signal word. The signal word (danger, warning, caution) describes the severity of the risk, and carries the following meaning:



DANGER

Indicates an immediate high risk which will result in death or serious physical injury (loss of body parts or long term damage) if not avoided.

If the instructions are not followed, then this will result in immediate death or serious physical injury.



WARNING

Indicates a medium risk, which could result in death or (serious) physical injury if not avoided.

If the instructions are not followed, then this may result in death or serious physical injury.



CAUTION

Indicates a low risk which could cause minor or medium level physical injury or damage to property if not avoided.



IMPORTANT

Indicates an obligation to special behaviour or an activity required for proper machine handling.

Non-compliance with these instructions can cause faults on the machine or in the environment.



NOTE

Indicates handling tips and particularly useful information.

These instructions will help you to use all the functions of your machine to the optimum.

2.3 Organisational measures

The operator must provide the necessary personal protective equipment as per the information provided by the manufacturer of the crop protection agent to be used, such as:

- Chemical-resistant gloves,
- Chemical-resistant overalls,
- Water-resistant footwear,
- A face mask,
- Breathing protection,
- Safety glasses,
- Skin protection agents, etc.



The operating manual

- Must always be kept at the place at which the machine is operated.
- Must always be easily accessible for the operator and maintenance personnel.

Check all the available safety equipment regularly.

2.4 Safety and protection equipment

Before each commissioning of the machine, all the safety and protection equipment must be properly attached and fully functional. Check all the safety and protection equipment regularly.

Faulty safety equipment

Faulty or disassembled safety and protection equipment can lead to dangerous situations.

2.5 Informal safety measures

As well as all the safety information in this operating manual, comply with the general, national regulations pertaining to accident prevention and environmental protection.

When driving on public roads and routes, then you should comply with the statutory road traffic regulations.

2.6 Operator training

Only those people who have been trained and instructed may work with/on the machine. The operator must clearly specify the responsibilities of the people charged with operation and maintenance work.

People being trained may only work with/on the machine under the supervision of an experienced person.

Activity \ People	Person specially trained for the activity	Trained operator	Person with specialist training (specialist workshop*)
Loading/Transport	X	X	X
Commissioning	--	X	--
Set-up, tool installation	--	--	X
Operation	--	X	--
Maintenance	--	--	X
Troubleshooting and fault elimination	X	--	X
Disposal	X	--	--

Legend:

X..permitted --..not permitted

- 1) A person who can assume a specific task and who can carry out this task for an appropriately qualified company.
- 2) Instructed persons are those who have been instructed in their assigned tasks and in the possible risks in the case of improper behaviour, have been trained if necessary, and have been informed about the necessary protective equipment and measures.
- 3) People with specialist technical training shall be considered as a specialist. Due to their specialist training and their knowledge of the appropriate regulations, they can evaluate the work with which they have been charged and detect possible dangers.

Comment:

A qualification equivalent to specialist training can be obtained through long term activity in the appropriate field of work.



Only a specialist workshop may carry out maintenance and repair work on the machine if such work is additionally marked "Workshop work". The personnel of a specialist workshop shall possess the appropriate knowledge and suitable aids (tools, lifting and support equipment) for carrying out the maintenance and repair work on the machine in a way which is both appropriate and safe.

2.7 Safety measures in normal operation

Only operate the machine if all the safety and protection equipment is fully functional.

Check the machine at least once a day for visible damage and check the function of the safety and protection equipment.

2.8 Danger from residual energy

Note that there may be residual mechanical, hydraulic, pneumatic and electrical/electronic energy on the machine.

Use appropriate measures to inform the operating personnel. You can find detailed information in the relevant sections of this operating manual.

2.9 Maintenance and repair work, fault elimination

Carry out prescribed setting, maintenance and inspection work in good time.

Secure all media such as compressed air and the hydraulic system against unintentional start-up.

Carefully fix and secure larger subassemblies to lifting gear when carrying out replacement work.

Check all the screw connections for a firm seat. After completion of the maintenance work, check the function of the safety equipment.

2.10 Constructive changes

You may make no changes, expansions or modifications to the machine without the approval of AMAZONEN-WERKE. This is also valid when welding support parts.

Any expansion or modification work shall require the written approval of AMAZONEN-WERKE. Only use the modification and accessory parts released by AMAZONEN-WERKE, so that the type approval remains valid according to the national and international regulations.

Vehicles with an official type approval or with equipment connected to a vehicle with a valid type approval or approval for road transport according to the German road traffic regulations must be in the state specified by the approval.



WARNING

Risk of contusions, cuts, dragging, catching or knocks from support parts.

It is forbidden to:

- Drill holes in the frame or on the running gear.
- Increase the size of existing holes on the frame or the running gear.
- Weld support parts.

2.10.1 Spare and wear parts and auxiliary materials

Immediately replace any machine parts which are not in a perfect state.

Only use **AMAZONE** spare and wear parts released by AMAZONEN-WERKE, so that the type approval remains valid according to the national and international regulations. The use of wear and spare parts from third parties does not guarantee that they have been constructed in a way as to meet the requirements placed on them.

AMAZONEN-WERKE shall accept no liability for damage caused by the use of unreleased spare and wear parts or auxiliary materials.

2.11 Cleaning and disposal

Handle and dispose of any materials used carefully, in particular

- When carrying out work on lubrication systems and equipment and
- When cleaning using solvents.

2.12 Operator workstation

The machine may only be operated by one person sitting in the driver's seat of the tractor.

2.13 Warning symbols and other labels on the machine



Always keep all the warning symbols on the machine clean and in a legible state. Replace illegible warning symbols. You can obtain the warning symbols from your dealer using the order number (e.g. MD 075).

Warning symbols - structure

Warning symbols indicate dangers on the machine and warn against residual dangers. At these points, there are permanent or unexpected dangers.

A warning symbol consists of two fields:



Field 1

is a symbol describing the danger, surrounded by triangular safety symbol.

Field 2

is a symbol showing how to avoid the danger.

Warning symbols - explanation

The column **Order number and explanation** provides an explanation of the neighbouring warning symbol. The description of the warning symbols is always the same and specifies, in the following order:

1. A description of the danger.
For example: danger of cutting!
2. The consequence of non-compliance with risk avoidance instructions.
For example: causes serious injuries to fingers or hands.
3. Instructions for avoiding the danger.
For example: only touch machine parts when they have come to a complete standstill.

2.13.1 Positions of warning symbols and other labels

The following diagrams show the arrangement of the warning symbols on the machine.

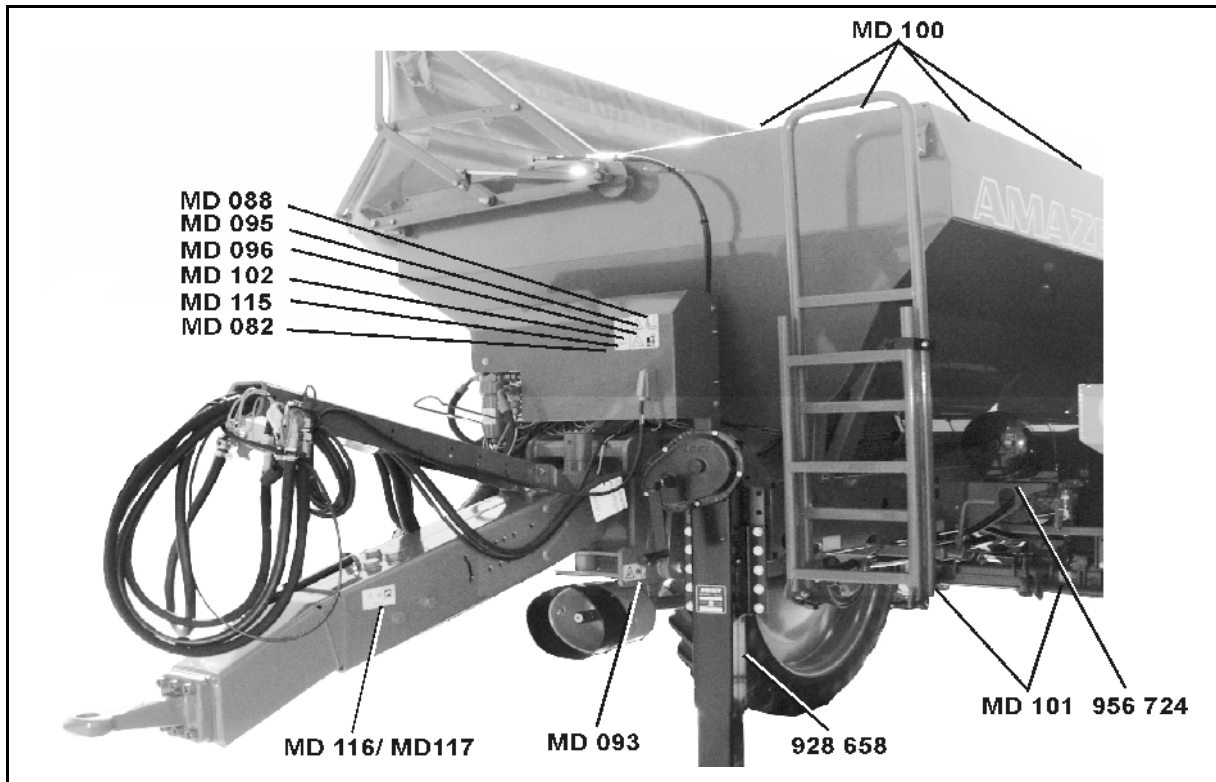


Fig. 1

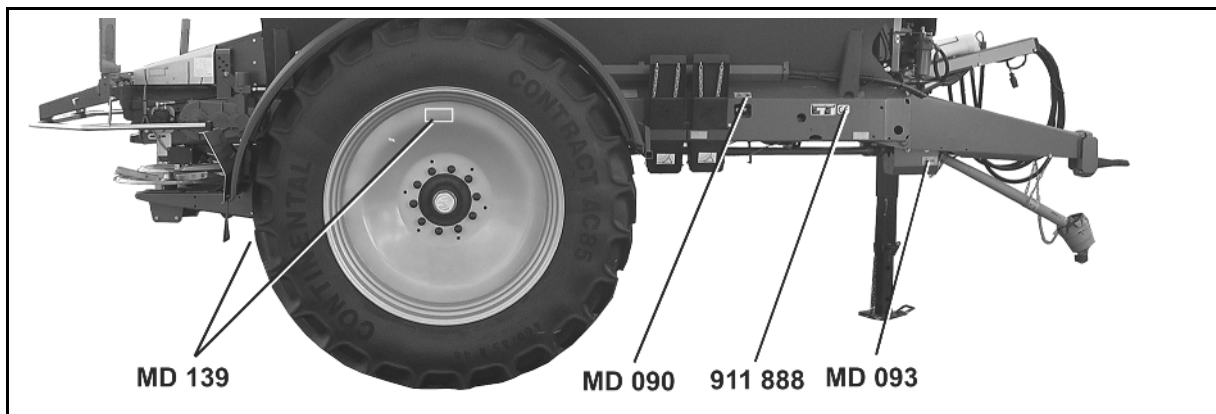


Fig. 2

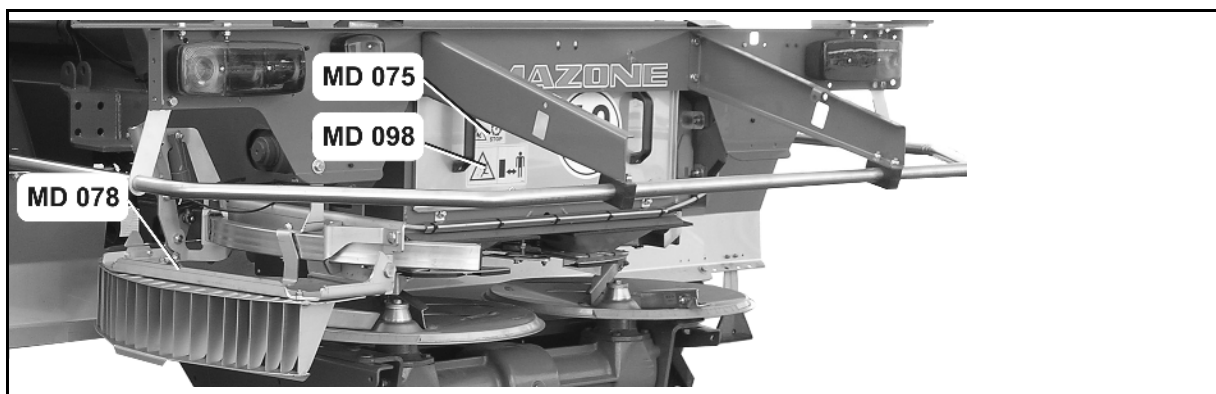


Fig. 3

General safety instructions

Order number and explanation

Warning symbols

MD 075

Risk of fingers and hands being cut or cut off by accessible, moving parts involved in the work process.

This danger can cause extremely serious injuries and the loss of body parts.

- Never reach into the danger area when the tractor engine is running with PTO shaft / hydraulic / electronics system connected.
- Wait for all moving machine parts to come to a complete standstill before reaching into the danger area.



MD 082

Risk of falling for personnel riding on treads or platforms.

This danger can cause extremely serious and potentially fatal injuries.

It is forbidden to ride on the machine or climb the machine when it is running. This also applies to machines with treads or platforms.

Make sure that nobody is riding on the machine.

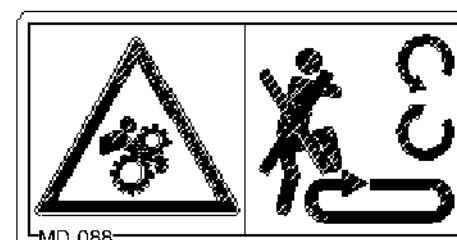


MD 088

Risk of being drawn in or caught by moving parts involved in the work process, caused by climbing on the loading platform when the machine is running.

This danger can cause extremely serious and potentially fatal injuries.

Never climb onto the loading platform when the tractor engine is running with PTO shaft / hydraulic / electronics system connected.



MD 093

Danger of trapping or entanglement of clothing!

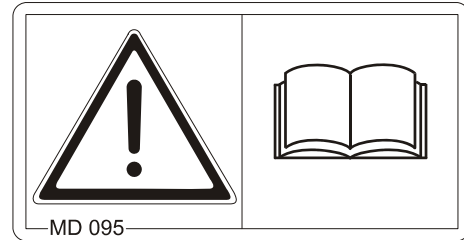
Causes serious, potentially fatal injuries anywhere on the body.

- Maintain a sufficient safety distance from the PTO shaft when the tractor engine is running with connected PTO shaft.
- Never open or remove guard devices from drive shafts when the tractor engine is running with the PTO shaft connected / hydraulic drive engaged.



MD 095

Read and follow the operating manual and safety information before starting up the machine!

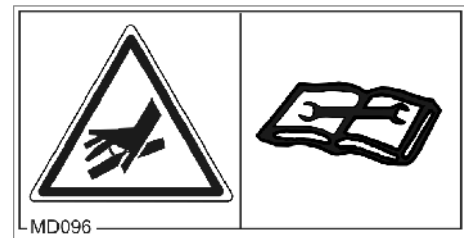


MD 096

Danger from escaping high-pressure hydraulic fluid due to leaking hydraulic hose lines.

This danger may cause serious injuries, perhaps even resulting in death, if escaping high-pressure hydraulic fluid passes through the skin and into the body.

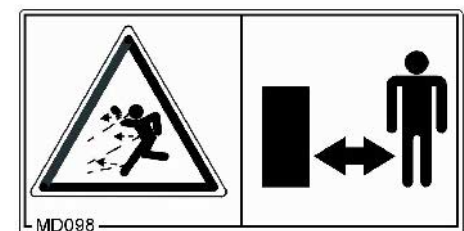
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.
- Read and observe the information in the operating manual before carrying out maintenance and repair work on the hydraulic hose lines.
- If you are injured by hydraulic fluid, contact a doctor immediately.



MD 098

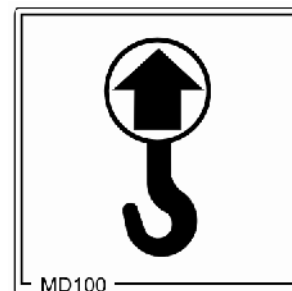
Danger from flying fertiliser particles.

Please ensure that all personnel maintain a sufficient safety distance and stay outside the danger area.



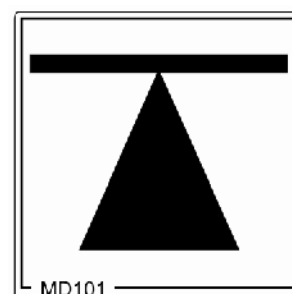
MD 100

This symbol indicates anchorage points for fastening slinging gear when loading the machine.



MD 101

This symbol indicates jacking points for lifting gear (jack).



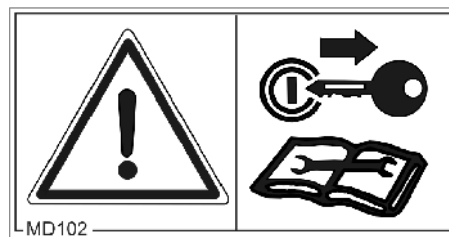
General safety instructions

MD 102

Danger from intervention in the machine, e.g. installation, adjusting, troubleshooting, cleaning, maintaining and repairing, due to the tractor and the machine being started unintentionally and rolling.

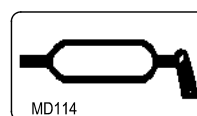
These dangers can cause extremely serious and potentially fatal injuries.

- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- Depending on the type of intervention, read and understand the information in the relevant sections of the operating manual.



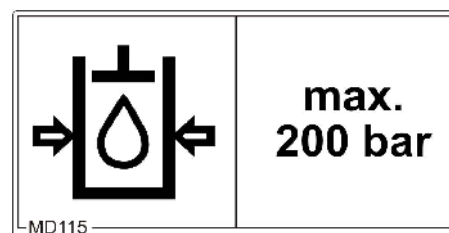
MD 114

This symbol indicates a lubrication point.



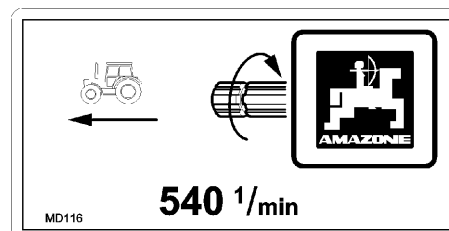
MD 115

The maximum operating pressure of the hydraulic system is 200 bar.



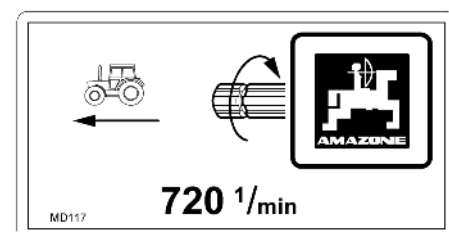
MD 116

Max. universal joint shaft speed 540/min.



MD 117

Max. universal joint shaft speed 720/min.



MD 145

The CE mark signifies that the machine corresponds with basic health and safety requirements.

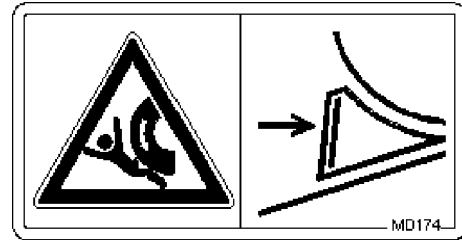


MD 174

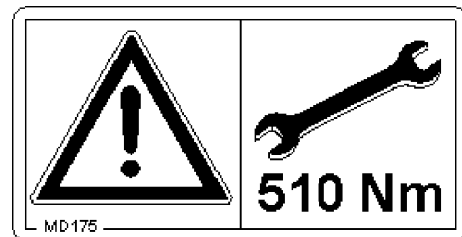
Danger from unintended continued movement of the machine.

Causes serious, potentially fatal injuries anywhere on the body.

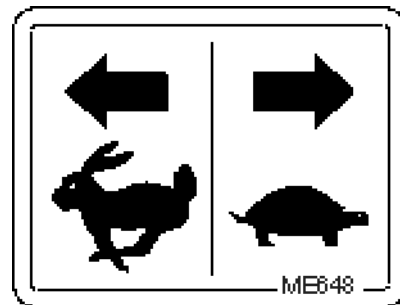
Secure the machine against unintended continued movement before uncoupling the machine from the tractor. To do this, use the parking brake and/or the wheel chock(s).

**MD 175**

The torque of the screw connection is 510 Nm.

**ME648**

Fast/slow



2.14 Dangers if the safety information is not observed

Non-compliance with the safety information

- Can pose both a danger to people and also to the environment and machine.
- Can lead to the loss of all warranty claims.

Seen individually, non-compliance with the safety information could pose the following risks:

- Danger to people through non-secured working areas.
- Failure of important machine functions.
- Failure of prescribed methods of maintenance and repair.
- Danger to people through mechanical and chemical impacts.
- Risk to environment through leakage of hydraulic fluid.

2.15 Safety-conscious working

Besides the safety information in this operating manual, the national general workplace safety and accident prevention regulations are binding.

Comply with the accident prevention instructions on the warning pictograms.

When driving on public roads and routes, comply with the appropriate statutory road traffic regulations.

2.16 Safety information for users



WARNING

Risk of contusions, cuts, dragging, catching or knocks from insufficient traffic and operational safety.

Before starting up the machine and the tractor, always check their traffic and operational safety.

2.16.1 General safety and accident prevention information

- Beside these instructions, comply with the general valid national safety and accident prevention regulations.
- The warning symbols and labels attached to the machine provide important information on safe machine operation. Compliance with this information guarantees your safety.
- Before moving off and starting up the machine, check the immediate area of the machine (children)! Ensure that you can see clearly!
- It is forbidden to ride on the machine or use it as a means of transport!
- Drive in such a way that you always have full control over the tractor with the attached machine.
In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.

Connecting and disconnecting the machine

- Only connect and transport the machine with tractors suitable for the task.
- When connecting machines to the tractor three-point hydraulic system, the mount categories of the tractor and the machine must always be the same!
- Connect the machine to the prescribed equipment in accordance with the specifications.
- When coupling machines to the front or the rear of the tractor, the following may not be exceeded:
 - The approved total tractor weight
 - The approved tractor axle loads
 - The approved load capacities of the tractor tyres
- Secure the tractor and the machine against unintentional rolling, before coupling or uncoupling the machine.
- Do not stand between the machine and tractor to be coupled while the tractor is approaching the machine.
Any helpers may only act as guides standing next to the vehicles, and may only move between the vehicles when both are at a standstill.
- Secure the operating lever of the tractor hydraulic system so that unintentional raising or lowering is impossible, before connecting the machine to or disconnecting the machine from the tractor three-point hydraulic system.
- When coupling and uncoupling machines, move the support equipment (if available) to the appropriate position (stability).



General safety instructions

- When actuating the support equipment, there is a danger of injury from contusion and cutting points!
- Be particularly careful when coupling the machine to the tractor or uncoupling it from the tractor! There are contusion and cutting points in the area of the coupling point between the tractor and the machine.
- It is forbidden to stand between the tractor and the machine when actuating the three-point hydraulic system.
- Coupled supply lines:
 - must easily give way to all movements in bends without tensioning, kinking or rubbing.
 - must not rub against other parts.
- The release ropes for quick action couplings must hang loosely and may not release themselves when lowered.
- Also ensure that uncoupled machines are stable!

Use of the machine

- Before starting work, ensure that you understand all the equipment and actuation elements of the machine and their function. There is no time for this when the machine is already in operation!
- Do not wear loose-fitting clothing! Loose clothing increases the risk over being caught by drive shafts!
- Only start-up the machine, when all the safety equipment has been attached and is in the safety position!
- Comply with the maximum load of the connected machine and the approved axle and drawbar loads of the tractor. If necessary, drive only with a partially filled hopper.
- It is forbidden to stand in the working area of the machine.
- It is forbidden to stand in the turning and rotation area of the machine.
- There are contusion and cutting points at externally-actuated (e.g. hydraulic) machine points.
- Only actuate externally-actuated machine parts when you are sure that there is no-one within a sufficient distance from the machine!
- Before leaving the tractor, secure it from unintentionally starting up or rolling away.
For this:
 - Lower the machine onto the ground
 - Apply the parking brake
 - Switch off the tractor engine
 - Remove the ignition key

Machine transportation

- Comply with the national road traffic regulations when using public highways.
- Before moving off, check:
 - The correct connection of the supply lines
 - The lighting system for damage, function and cleanliness
 - The brake and hydraulic system for visible damage
 - That the parking brake is completely disengaged
 - The function of the brake system
- Ensure that the tractor has sufficient steering and braking power. Any machines and front/rear weights connected to the tractor influence the driving behaviour and the steering and braking power of the tractor.
- If necessary, use front weights.

The front tractor axle must always be loaded with at least 20 % of the tractor empty weight, in order to ensure sufficient steering power.
- Always fix the front or rear weights to the intended fixing points according to regulations.
- Comply with the maximum payload of the connected machine and the approved axle and drawbar loads of the tractor.
- The tractor must guarantee the prescribed brake delay for the loaded vehicle combination (tractor plus connected machine).
- Check the brake power before moving off.
- When turning corners with the machine connected, take the broad load and balance weight of the machine into account.
- Before moving off, ensure sufficient side locking of the tractor lower links, when the machine is fixed to the three-point hydraulic system or lower links of the tractor.
- Before moving off, move all the swivel machine parts to the transport position.
- Before moving off, secure all the swivel machine parts in the transport position against risky position changes. Use the transport locks intended for this.
- Before moving off, secure the operating lever of the three-point hydraulic system against unintentional raising or lowering of the connected machine.
- Check that the transport equipment, e.g. lighting, warning equipment and protective equipment, is correctly mounted on the machine.
- Before transportation, carry out a visual check that the upper and lower link pins are firmly fixed with the lynch pin against unintentional release.
- Adjust your driving speed to the prevailing conditions.
- Before driving downhill, switch to a low gear.
- Before moving off, always switch off the independent wheel braking (lock the pedals).

2.16.2 Hydraulic system

- The hydraulic system is under a high pressure.
- Ensure that the hydraulic hose lines are connected correctly.
- When connecting the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine and tractor sides.
- It is forbidden to block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:
 - are continuous
 - are automatically controlled
 - require a floating position or pressed position to function
- Before working on the hydraulic system
 - Lower the machine
 - Depressurise the hydraulic system
 - Shut off the tractor engine
 - Apply the parking brake
 - Remove the ignition key
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if it is damaged or worn. Only use original **AMAZONE** hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose lines made from thermoplastics, other guide values may be decisive.
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.

Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!
If you are injured by hydraulic fluid, contact a doctor immediately.
Danger of infection.
- When searching for leakage points, use suitable aids, to avoid the serious risk of infection.

2.16.3 Electrical system

- When working on the electrical system, always disconnect the battery (negative terminal).
- Only use the prescribed fuses. If fuses are used that are too highly rated, the electrical system will be destroyed – risk of fire.
- Ensure that the battery is connected correctly - firstly connect the positive terminal and then connect the negative terminal. When disconnecting the battery, disconnect the negative terminal first, followed by the positive terminal.
- Always place the appropriate cover over the positive battery terminal. If there is accidental earth contact, there is a risk of explosion.
- Risk of explosion. Avoid sparking and naked flames in the area of the battery.
- The machine can be equipped with electronic components, the function of which may be influenced by electromagnetic interference from other units. Such interference can pose risks to people, if the following safety information is not followed.
 - If retrofitting electrical units and/or components on the machine with a connection to the on-board power supply, the user is responsible for checking whether the installation might cause faults on the vehicle electronics or other components.
 - Ensure that the retrofitted electrical and electronic components comply with the EMC directive 2004/108/EC in the appropriate version and carry the CE mark.

2.16.4 Coupled machines

- Observe the permitted combination options of the attachment equipment on the tractor and the machine drawbar.
Only couple permitted combinations of vehicles (tractor and attached machine).
- On single axle machines, observe the maximum permitted drawbar load of the tractor on the attachment equipment.
- Ensure that the tractor has sufficient steering and braking power.
Machines attached or coupled to a tractor influence the driving behaviour and steering and braking power of the tractor, in particular single axle machines with a drawbar load on the tractor.
- Only a specialist workshop may adjust the height of the drawbar on yoke bars with a drawbar load.

2.16.5 Brake system

- Only specialist workshops or recognised brake services can carry out adjustment and repair work on the brake system.
- Have the brake system thoroughly checked regularly.
- If there are any malfunctions, stop the tractor immediately using the brake system. Have the malfunction rectified immediately.
- Before performing any work on the brake system, park the machine safely and secure the machine against unintentional lowering or rolling (wheel chocks).
- Be particularly careful when carrying out any welding, torch cutting or drilling work in the area of the brake lines.
- Always carry out a braking test after any adjusting or repair work on the brake system.

Pneumatic braking system

- Before coupling the machine, clean any dirt from the sealing rings on the hose couplings of the supply and brake line.
- Only move off with the machine connected when the pressure gauge on the tractor shows 5.0 bar.
- Drain the air reservoir every day.
- Before driving without the machine, lock the hose couplings on the tractor.
- Hang the hose couplings of the machine supply and brake lines in the appropriate idle couplings.
- When filling up or replacing the brake fluid, use the prescribed fluid. When replacing the brake fluid, comply with the appropriate regulations.
- Do not make any changes to the specified settings on the brake valves.
- Replace the air reservoir if:
 - The air reservoir can be moved in the tensioning belts
 - The air reservoir is damaged
 - The rating plate on the air reservoir is rusty, loose or missing.

Hydraulic brake system for export machines

- Hydraulic brake systems are prohibited in Germany.
- When filling up or replacing the brake fluid, use the prescribed hydraulic fluids. When replacing the hydraulic fluids, comply with the appropriate regulations.

2.16.6 Tyres

- Repair work on tyres and wheels may only be carried out by specialists with suitable installation tools.
- Check the air pressure at regular intervals.
- Inflate tyres to the specified pressure. If the air pressure in the tyres is too high, then there is a risk of explosion.
- Park the machine in a safe place and lock the machine against unintentional lowering and rolling (parking brake, wheel chocks), before carrying out work on the tyres.
- Tighten or retighten all the fixing screws and nuts in accordance with the specifications of AMAZONEN-WERKE.

2.16.7 Fertiliser spreader operation

- Stay clear of the working area! Danger from flying fertiliser particles. Direct persons away from the throwing range of the fertiliser spreader before switching on the spreader discs. Do not walk or stand close to rotating spreader discs.
- Fill the fertiliser spreader only when the tractor engine is shut off, the ignition key is pulled and the shutters are closed.
- Do not place any foreign objects in the hopper.
- While carrying out the spread rate check, beware of danger points from rotating machine parts.
- For side spreading at field edges, bodies of water or roads, use side spreading devices.
- Before each use, ensure that the attachment parts are properly fitted, particularly those for attaching the spreader discs and spreading vanes.

2.16.8 Universal joint shaft operation

- Use only the PTO shafts prescribed by the AMAZONEN-WERKE factories, equipped with the proper safety devices.
- Also read and follow the operating manual from the PTO shaft manufacturer.
- The protective tube and PTO shaft guard must be undamaged, and the shield of the tractor and machine universal joint shaft must be attached and be in proper working condition.
- Work is prohibited while the safety devices are damaged.
- You may install or remove the PTO shaft only after you have done all of the following:
 - Switched off the universal joint shaft
 - Switched off the tractor engine
 - Applied the parking brake
 - The ignition key has been removed
- Always ensure that the universal joint shaft is installed and secured correctly.
- When using wide-angle PTO shafts, always install the wide angle joint at the pivot point between the tractor and machine.

- Secure the PTO shaft guard by attaching the chain(s) to prevent movement.
- Observe the prescribed pipe overlaps in transport and operational positions. (Read and follow the operating manual from the PTO shaft manufacturer.)
- When turning corners, observe the permitted bending and displacement of the PTO shaft.
- Before switching on the universal joint shaft, check that the selected universal joint shaft speed of the tractor matches the permitted drive rev. speed of the machine.
- Instruct people to leave the danger area of the machine before you switch on the universal joint shaft.
- While work is being carried out with the universal joint shaft, there must be no one in the area of the universal drive or PTO shaft while it is turning.
- Never switch on the universal joint shaft while the tractor engine is shut off.
- Always switch off the universal joint shaft whenever excessive bending occurs or it is not needed.
- **WARNING!** After the universal joint shaft is switched off, there is a danger of injury from the continued rotation of freewheeling machine parts.
Do not approach the machine too closely during this time. You may work on the machine only after all machine parts have come to a complete stop.
- Secure the tractor and machine against unintentional starting and unintentional rolling away before you perform any cleaning, servicing or maintenance work on universal joint shaft-driven machines or PTO shafts.
- After decoupling the PTO shaft, place it on the holder provided.
- After removing the PTO shaft, attach the protective sleeve to the universal joint shaft stub.
- When using the travel-dependent universal joint shaft, note that the universal joint shaft speed depends on the drive speed, and that the direction of rotation reverses when you drive in reverse.

2.16.9 Cleaning, maintenance and repairs

- Only carry out maintenance, repair and cleaning work on the machine when
 - The drive is switched off
 - The tractor engine has come to a complete stop
 - The ignition key has been removed
 - The machine connector has been removed from the on-board computer
- Regularly check the nuts and bolts for a firm seat and retighten them as necessary.
- Secure the raised machine and/or raised machine parts against unintentional falling before maintaining, repairing or cleaning the machine.
- When replacing work tools with blades, use suitable tools and gloves.
- Dispose of oils, greases and filters in the appropriate way.
- Disconnect the cable from the tractor generator and battery before carrying out electrical welding work on the tractor and on attached machines.
- Spare parts must at least meet the specified technical requirements of AMAZONEN-WERKE. This is ensured through the use of original **AMAZONE** spare parts.

3 Loading

Loading and unloading with a tractor



WARNING

There is a risk of accident if the tractor is unsuitable and the machine brake system is not connected to the tractor or filled.



- Couple the machine to the tractor correctly before loading the machine onto a transport vehicle or unloading it from a transport vehicle.
- You may only couple and transport the machine with a tractor for loading and unloading, if the tractor meets the necessary power requirements.

Pneumatic braking system:

- Only move off with the machine connected when the pressure gauge on the tractor shows 5.0 bar.

Loading using a lifting crane

There are 2 attachment points (Fig. 4, Fig. 5) at the front and rear of the hopper.



DANGER

If loading the machine with a lifting crane, use the marked attachment points for lifting belts.



DANGER

The minimum tensile strength of each lifting belt must be 1,000 kg!



Fig. 4



Fig. 5

4 Product description

This section:

- Provides a comprehensive overview of the machine structure.
- Provides the names of the individual modules and controls.

Read this section when actually at the machine. This helps you to understand the machine better.

4.1 Overview of subassemblies

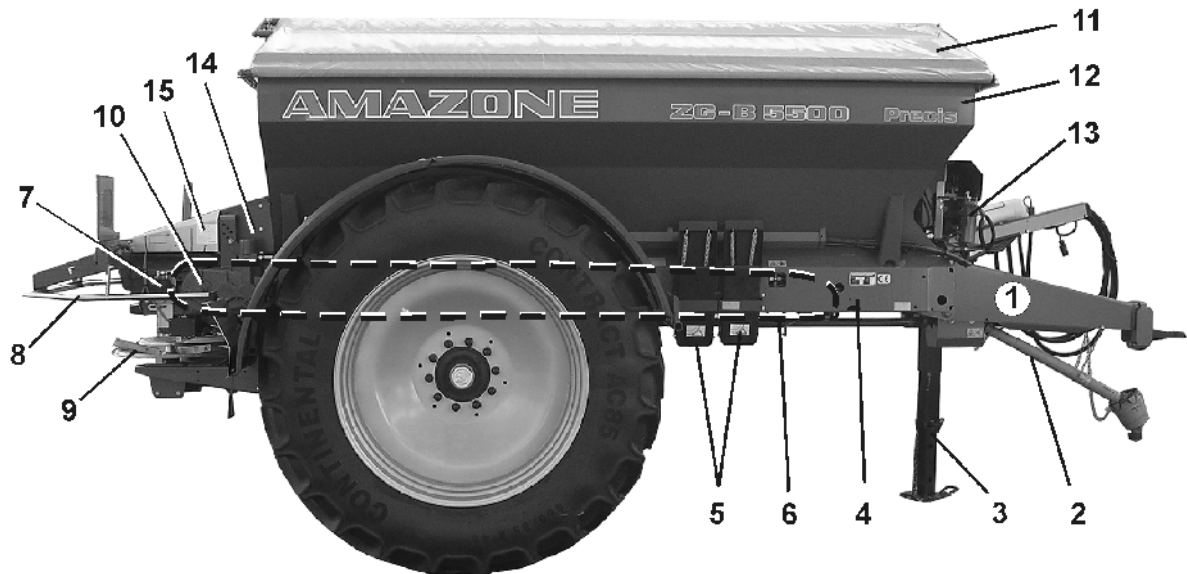


Fig. 6

- | | |
|--|---|
| (1) Drawbar | (9) Spreader discs |
| (2) PTO shaft | (10) Gearbox for belt conveyor |
| (3) Stand | (11) Hopper cover swivelable (optional) |
| (4) Frame | (12) Hopper |
| (5) Wheel chocks | (13) Hydraulic control block with oil filter and machine computer |
| (6) Belt conveyor | (14) Hydraulic motor for belt conveyor drive |
| (7) Hydraulic motor for agitator shaft drive | (15) Fertiliser antechamber with flap control |
| (8) Guard tube | |

4.2 Safety and protection equipment

Fig. 7/...

- | |
|--|
| (1) PTO shaft guard |
| (2) Drive shaft protector |
| (3) Guard plate for intermediate drive, floor belt |
| (4) Guard tube |
| • Warning symbol |

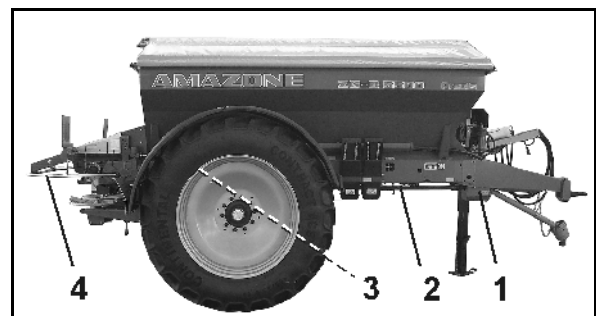


Fig. 7

4.3 Supply lines between the tractor and the machine

Supply lines in parking position:

Fig. 8/...

- (1) Hydraulic hose lines (depending on equipment)
- (2) Electric cable for lighting
- (3) Machine cable with machine connector for operator control terminal
- (4) Brake line with coupling head for air-pressure brake

(Not shown)
Brake line with connection to hydraulic brake

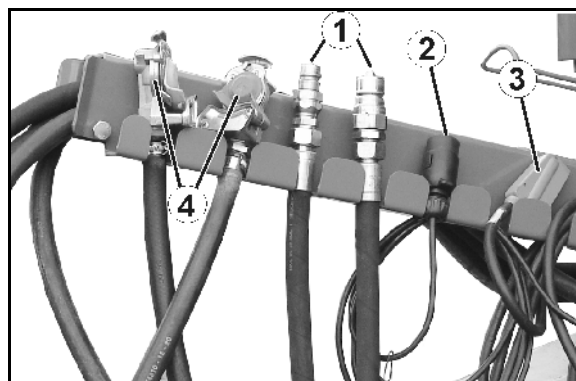


Fig. 8

4.4 Transportation equipment

Fig. 9:

- (1) 2 rear lights; 2 brake lights;
2 turn indicators
- (2) 2 red reflectors (triangular)
- (3) 1 licence plate holder with lighting (required if the registration plate on the tractor is obscured)
- (4) Lighting
- (5) Warning signs

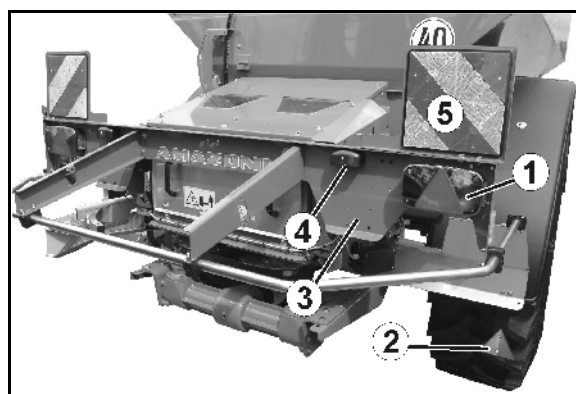


Fig. 9

Fig. 10:

- (1) 2 x 3 reflectors, yellow
(at side, max. 3m apart)



Fig. 10

4.5 Intended use

The machine

- Is designed exclusively for conventional agricultural applications and is suitable for spreading dry, granuled, prilled and crystalline fertiliser.
- Is coupled to a tractor depending on the drawbar via
 - Pin coupling
 - Hitch hook
 - Ball couplingcoupled to a tractor and operated by an additional person.

Sloping terrain can be navigated as follows:

- Along the contours
 - Direction of travel to the left 5 %
 - Direction of travel to the right 5 %
- Along the gradient
 - Up the slope 15 %
 - Down the slope 15 %

The intended use also includes:

- Compliance with all the instructions in this operating manual.
- Execution of inspection and maintenance work.
- Exclusive use of original **AMAZONE** spare parts.

Other uses to those specified above are forbidden and shall be considered as improper.

For any damage resulting from improper use:

- the operator bears the sole responsibility,
- AMAZONEN-WERKE assumes no liability whatsoever.

4.6 Danger areas

The danger area is the area around the machine in which people can be caught:

- By work movements made by the machine and its tools
- By materials or foreign bodies thrown out of the machine
- By tools rising or falling unintentionally
- By unintentional rolling of the tractor and the machine

Within the machine danger area, there are danger points with permanent or unexpected risks. Warning symbols indicate these danger points and warn against residual dangers, which cannot be eliminated for construction reasons. Here, the special safety regulations of the appropriate section shall be valid.

No-one may stand in the machine danger area:

- as long as the tractor engine is running with a connected PTO shaft / hydraulic system.
- as long as the tractor and machine are not protected against unintentional start-up and running.

Product description

The operating person may only move the machine or switch or drive the tools from the transport position to the working position or vice-versa when there is no-one in the machine danger area.

Danger points exist:

- Between the tractor and the machine, in particular during coupling and uncoupling and when loading the seed hopper
- In the area of moving parts
 - Rotating spreader discs with spreading vanes
 - Rotating agitator shaft and agitator shaft drive
 - Hydraulic actuation of the shutters
 - Electric actuation of the dosing shutters
- When climbing onto the machine
- Under raised, unsecured machines and machine parts
- While spreading, from fertiliser pellets in the area of the spread fan

4.7 Conformity

	Directives / standards
The machine fulfils the:	<ul style="list-style-type: none"> • Machines directive 2006/42/EC • EMC directive 2004/108/EC • EN 907 • EN 12761-1 • EN 12761-2

4.8 Rating plate and CE mark

The following diagrams show the positions of the rating plate (Fig. 11/1) and the CE mark (Fig. 11/1).

The rating plate shows:

- Machine ID no.:
- Type
- Permissible system pressure (bar)
- Year of manufacture
- Factory
- Performance (kW)
- Basic weight (kg)
- Permissible total weight (kg)
- Rear axle load (kg)
- Front axle load / supported weight (kg)

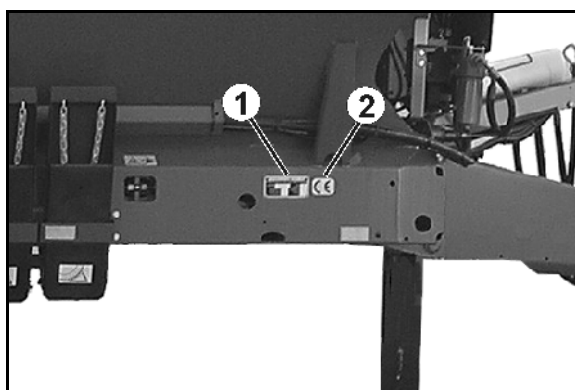


Fig. 11

4.9 Technical data

			ZG-B 5500 Precis		ZG-B 8200 Precis	
Hopper size		[l]	5500		8200	
Basic weight:		[kg]	2915		3000	
Permissible drawbar load		[kg]	2000			
With towing device with ramp device		[kg]	1600		-	
Length:		[mm]	6500			
Width / Height with tyres:						
Tyres	Impres- sion depth	[mm]	Width	Height	Width	Height
550/60-22.5	0		2,400	2,260	2,400	2,590
600/55-26.5	0		2,450	2,300	2,450	2,630
700/50-26.5	0		2,550	2,300	2,550**	2,630
23,01.2026	0		2,437	2,410	2,437	2,740
28L-26	-50		2,664	2,422	2,664**	2,752
300/95 R46	100		2,560 2,110	2,517	-	-
340/85 R48	100		2,600 2,150	2,544	-	-
460/85 R38	100		2,700 2,250	2,523	-	-
460/85 R46	100		-	-	2,730	2,854
520/85 R38	100		2,740 2,320	2,540	2,740 2,320	2,870
520/85 R42	100		-	-	2,750	2,830
Brake			Overrun brake with automatic reversing		-	
			Pneumatic brake			
			Hydraulic brake system:			



Due to the impression depth caused by changing the wheels, two vehicle widths are specified for some tyres.

Payload = permissible total weight - basic weight



DANGER

Exceeding the permitted payload is prohibited.

Risk of accident because of unstable driving conditions.

Carefully determine the payload, and therefore the permitted filling amount for your machine. Not all filling media can be used to fill the tank completely.

4.9.1 Permissible total weights and permissible tyres

	<div> <div>Axle load</div> <div>Permissible total weight</div> <div>With air pressure</div> </div> <div> <div>kg]</div> <div>[kg]</div> <div>[bar]</div> </div>					
	ZG-B 5500			ZG-B 8200		
Permissible speed	25 km/h	40 km/h	50 km/h	25 km/h	40 km/h	50 km/h
Tyres						
300/95 R 46 LI145A8	6,300 8,300 3.6	5,800 7,800 3.6	—	—	—	—
340/85 R 48 LI151A8	6,730 8,730 3.0	6,100 8,100 3.0	—	—	—	—
460/85 R 38 LI146A8	6,600 8,600 1.6	6,000 8,000 1.6	5,400 7,400 1.6	—	—	—
460/85 R46 LI158A8/155B	—	—	—	9,100 11,100 2.4	8,500 10,500 2.4	7,750 9,750 2.4
520/85 R 38 LI155A8/152B	8,300 10,300 1.6	7,750 9,750 1.6	7,100 9,100 1.6	8,300 10,300 1.6	7,750 9,750 1.6	7,100 9,100 1.6
520/85 R 42 LI155A8	—	—	—	8,300 10,300 1.6	7,750 9,750 1.6	7,100 9,100 1.6
520/85 R 42 LI162A8	—	—	—	1,000 12,000 1.6	9,500 11,500 1.6	87,505 10,750 1.6
550/60-22.5 LI160A8	8,000 10,000 2.1	80,000 10,000 2.1	8,000 10,000 2.1	10,000 12,000 2.1	9,000 11,000 2.1	8,000 10,000 2.1
600/55-26.5 LI165A8	8,000 10,000 2.0	8,000 10,000 2.0	8,000 10,000 2.0	10,000 12,000 2.0	10,000 12,000 2.0	9,280 11,280 2.0
700/50-26.5 LI169A8	8,000 10,000 1.8	8,000 10,000 1.8	8,000 10,000 1.8	10,000 12,000 1.8	10,000 12,000 1.8	10,000 12,000 1.8
23.1-26 LI162A8	8,000 10,000 1.7	8,000 10,000 1.7	8,000 10,000 1.7	10,000 12,000 1.7	4,750 11,500 1.7	8,640 10,640 1.7
28L-26 LI167A8	8,000 10,000 1.6	8,000 10,000 1.6	8,000 10,000 1.6	10,000 12,000 1.6	10,000 12,000 1.6	9,920 11,920 1.6

4.10 Necessary tractor equipment

To use the machine, the tractor must fulfil the power requirements and must be equipped with the necessary electric, hydraulic and brake connections.

Tractor engine power

ZG-B 5500	from 60 kW
ZG-B 8200	from 75 kW

Electrical system

Battery voltage:	• 12V (Volt)
Lighting socket:	• 7-pin

Hydraulic system

Maximum operating pressure:	• 200 bar
Tractor pump capacity:	• At least 40 l/min at 150 bar
Machine hydraulic fluid:	• Transmission/hydraulic fluid, petrol SAE 80W API GL4 The machine hydraulic/transmission fluid is suitable for the combined hydraulic/transmission fluid circuits of all standard makes of tractor.
Hydraulic control units:	Depending on equipment, see page 52

Brake system

Dual circuit service brake system:	• 1 hose coupling (red) for the supply line • 1 hose coupling (yellow) for the brake line
Single circuit service brake system:	• 1 service line hose coupling for the brake line
Hydraulic brake system:	• 1 hydraulic coupling, conforms to ISO 5676



The hydraulic brake system is prohibited in Germany and several other EU countries.

4.11 Noise production data

The workplace-related emission value (acoustic pressure level) is 74 dB(A), measured in operating condition at the ear of the tractor driver with the cabin closed.

Measuring unit: OPTAC SLM 5.

The noise level is primarily dependent on the vehicle used.

5 Structure and function

5.1 Function

The following section provides information on the machine structure and the functions of the individual components.

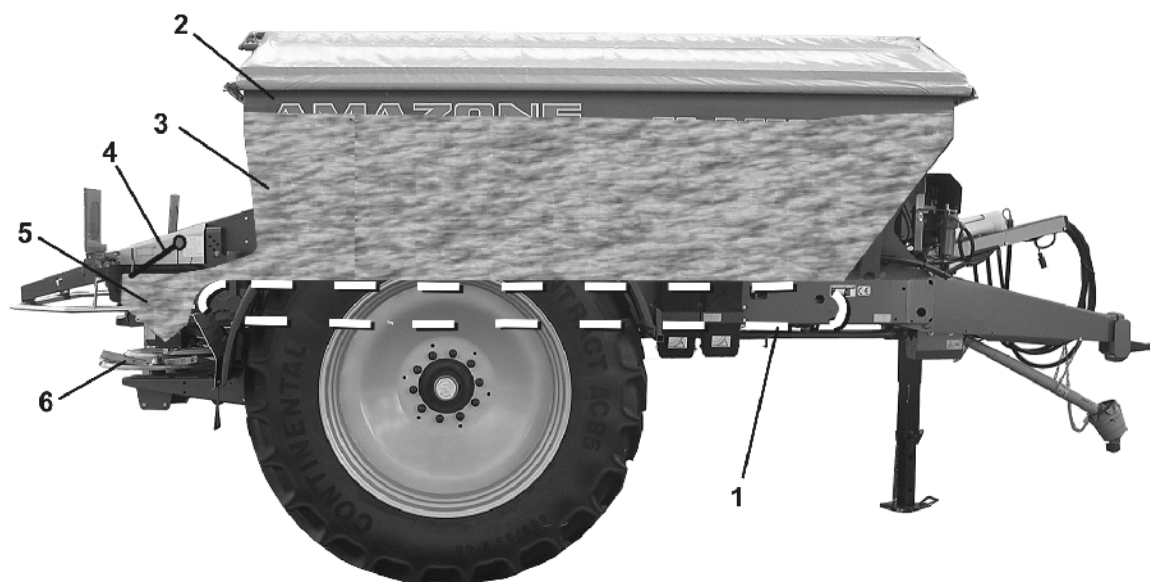


Fig. 12

The **AMAZONE ZG-B** bulk fertiliser spreader is a fertiliser spreader with hoppers from 5200 l to 8200 l in volume.

It is used to apply granulated fertiliser.

The product (Fig. 12/3) is transported out of the hopper (Fig. 12/2) by the belt conveyor (Fig. 12/1) by means of a flap controller (Fig. 12/4) and delivered into the fertiliser antechamber (Fig. 12/5). From there, the fertiliser is delivered to the spreader discs via the hopper tips (Fig. 12/6).

The spreader discs are driven by the tractor universal joint shaft at 540 rpm or 720 rpm and are fitted with one short and one long spreading vane.

The belt conveyor, spreader discs and agitators are all driven hydraulically.

The working width is max. 36 m, depending on the spreader disc.

The **ZG-B** can be equipped with different axles and brake systems:

- Brake axle with overrun brake up to 8,000 kg, up to 25 km/h
- Brake axle up to 10,000 kg
- Running axle for 8,000 kg, 25 km/h
- Solo dual-circuit pneumatic braking system
- Solo hydraulic brake system (for export only)

Equipment of the **ZG-B Precis**:

- o Speed-dependent metering via electro-hydraulically controlled belt conveyor.
- o **AMATRON**⁺ on-board computer
- o Double shutter system fitted as standard, can be disengaged on one side
- o Optionally available with weigh cell.
- o Optionally available with hydraulic track follow drawbar Trail-Tron
- o Optionally available with boundary and side spreading with the border spread deflector **Limiter**

5.2 Air-pressure brake system

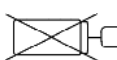


Keeping to the service interval is essential for proper functioning of the dual circuit service brake system.

Fig. 13/...

- (1) Braking force regulator
- (2) Hand lever for setting braking force manually
- (3) Setting position marking

The braking force is set in 3 stages, depending on the load status of the machine.

- Machine full → **1/1**
- Machine partially full → **1/2**
- Machine empty → **0**
- Brake released → 

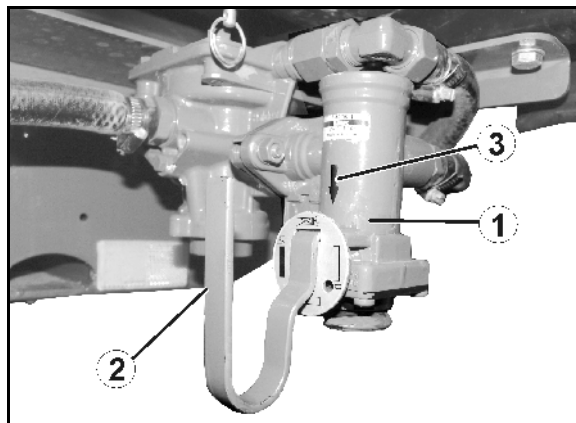


Fig. 13

Fig. 14/...

- (1) Air reservoir
- (2) Drainage valve for condensate.
- (3) Test connection

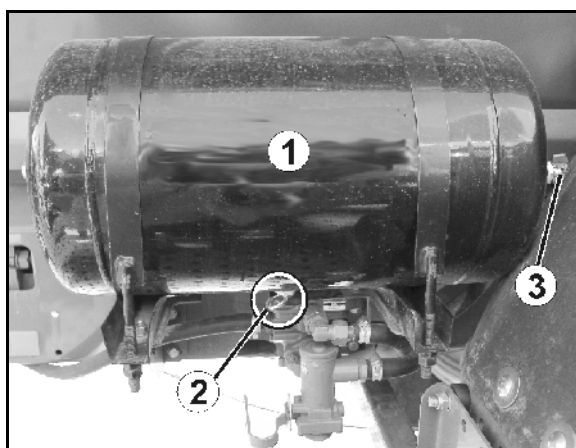


Fig. 14

- **Dual-circuit pneumatic braking system**

Fig. 15/...

- (1) Hose coupling on brake line (yellow)
- (2) Hose coupling on supply line (red)

Without illustration:

- **Single circuit pneumatic braking system**
Hose coupling (black)

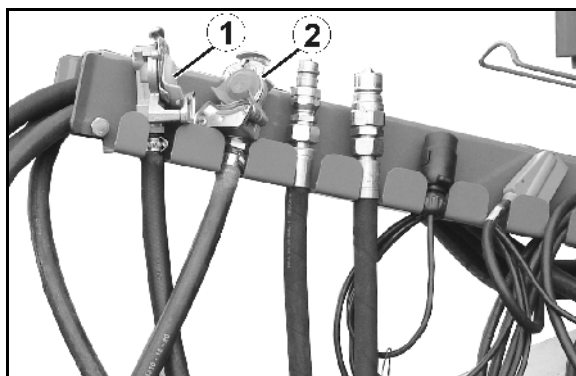


Fig. 15

5.2.1 Automatic load-dependent braking force regulator (ALB), (optional)



Only for machines with sprung suspension



WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through incorrectly functioning brake system.

You must not change the adjustment measurement on the automatic load-dependent braking force regulator. The adjustment measurement must match the value given on the Haldex ALB plate.

5.2.2 Coupling the brake system



WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through incorrectly functioning brake system.

- When coupling the brake and supply line, ensure that
 - The sealing rings on the hose couplings are clean
 - The sealing rings on the hose couplings seal properly
- Replace damaged sealing rings immediately
- Drain the air reservoir each day before the first use
- Only start up with the machine coupled if the pressure gauge on the tractor shows 5.0 bar



WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling machine, if the service brake is released.

Dual-circuit pneumatic braking system:

- Always couple the hose coupling on the brake line (yellow) first and then the hose coupling on the supply line (red).
- The service brake on the machine is immediately released from the brake setting if the red hose coupling is coupled.

1. Open the cover on the hose coupling on the tractor.

2. Pneumatic braking system:

- **Dual-circuit** pneumatic braking system:

2.1 Fasten the brake line hose coupling (yellow) in the yellow coupling on the tractor, as specified.

2.3 Fasten the supply line hose coupling (red) in the red coupling on the tractor, as specified.

→ On coupling the supply line (red), the supply pressure coming from the tractor automatically pushes out the button for the release valve on the trailer brake valve.

- **Single circuit** pneumatic braking system:

2.1 Fasten the hose coupling (black) to the tractor, as specified.

3. Release the parking brake and/or remove the wheel chocks.

5.2.3 Uncoupling the brake system

**WARNING**

Risk of crushing, cutting, being caught or drawn in, or impact through the accidentally rolling machine, if the service brake is released.

Dual-circuit pneumatic braking system:

- Always uncouple the supply line hose coupling (red) first, and then the brake line hose coupling (yellow).
- The service brake of the machine only moves into the brake position when the red hose coupling has been uncoupled.
- Always keep to this order, otherwise the service brake system will be released and may set the unbraked machine in motion.



When the machine is uncoupled or pulled away from the trailer, air is vented from the trailer brake valve supply line. The trailer brake valve is automatically switched and operates the service braking system independently of the automatic, load-dependent braking force regulator.

1. Secure the machine against unintentionally rolling. To do this, use the parking brake and/or wheel chocks.
2. Pneumatic braking system
 - **Dual-circuit** pneumatic braking system:
 - 2.1 Release the supply line hose coupling (red).
 - 2.2 Release the brake line hose coupling (yellow).
 - **Single circuit** pneumatic braking system:
 - 2.1 Release the hose coupling (black).
3. Close the hose coupling covers on the tractor.

5.3 Hydraulic service brake system

To control the hydraulic service brake system, the tractor requires hydraulic braking equipment.

5.3.1 Coupling the hydraulic service brake system



Only couple clean hydraulic couplings.

1. Remove the protective caps.
2. Clean the hydraulic connector and hydraulic socket if necessary.
3. Insert the tractor's hydraulic connector into the machine's hydraulic socket.
4. Tighten the hydraulic screw union (if present) hand-tight.

5.3.2 Uncoupling the hydraulic service brake system

1. Press the release button for the emergency brake (Fig. 16).
2. Loosen the hydraulic screw union (if present).
3. Protect the hydraulic connector and hydraulic socket against soiling using the dust protection caps.
4. Store the hydraulic hose line in the hose cabinet.

5.3.3 Emergency brake

In event of the machine being released from the tractor during travel, the emergency brake will brake the machine

Fig. 16/...

- (1) Pulling cable
- (2) Brake valve with pressure accumulator
- (3) Relief button
- (A) Brake released
- (B) Brake applied

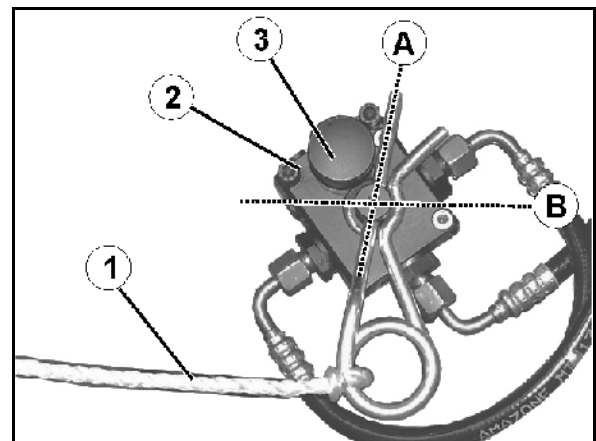


Fig. 16



DANGER

Before travel, set the brake to the application position.

Structure and function

For this purpose:

1. Secure the pulling cable to a fixed point on the tractor.
 2. Apply the tractor brake with the tractor engine running and hydraulic brake connected.
- Pressure accumulator of the emergency brake is being charged.



DANGER

Risk of accident through brake malfunction!

After withdrawing the safety splint (e.g. when activating the emergency brake), it is essential to insert the safety splint into the brake valve from the same side (**Fehler! Verweisquelle konnte nicht gefunden werden.**). Otherwise the brake will not function.

After reinserting the safety splint, carry out a brake test for the service brake and the emergency brake.

5.4 Parking brake

When the parking brake is on, it secures the uncoupled machine against unintentional rolling. The parking brake is operated by turning the crank, which in turn operates the spindle and bowden cable.

Fig. 17:

Crank in parking position

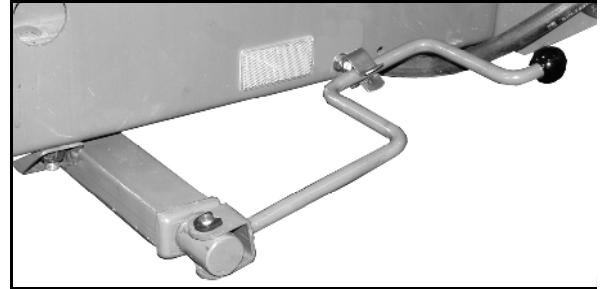


Fig. 17

Fig. 18:

Crank for releasing / applying in end position.

(The application force of the parking brake is 20 kg manual force).

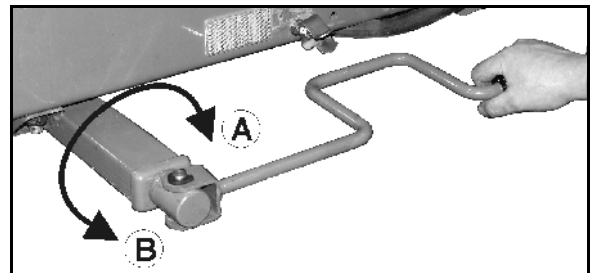


Fig. 18

Fig. 19:

Crank for rapid releasing / applying.

(A) Apply the parking brake.

(B) Release the parking brake.

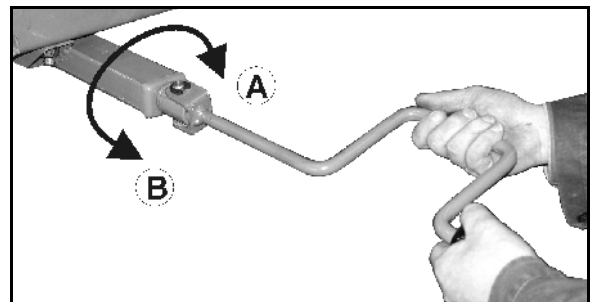


Fig. 19



- Correct the setting of the parking brake if the spindle's tension is no longer sufficient.
- Ensure that the bowden cable is not lying or rubbing against other vehicle parts.
- When the parking brake is off, the bowden cable must be slightly slack.

5.5 Overrun brake with automatic reversing

Fig. 20/...

- (1) Parking brake
 - o Off (A)
 - o On (B)
- (2) Pulling cable

When coupling the machine:

→ Fasten the parking brake pulling cable to a fixed point on the tractor.

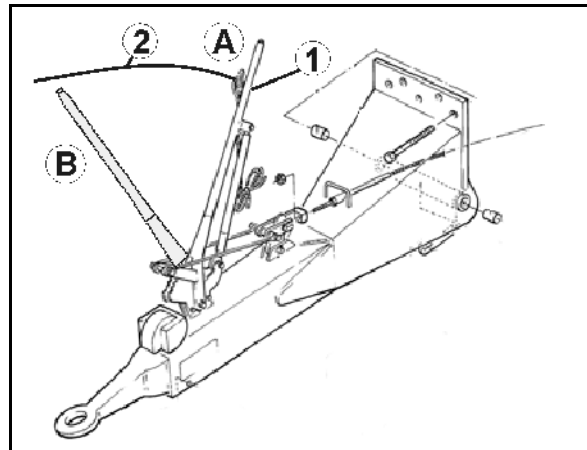


Fig. 20

5.6 Wheel chocks

Use wheel chocks to prevent the machine from rolling.

Fig. 21/...

- (1) Foldable wheel chocks
- (2) Wheel chock storage device

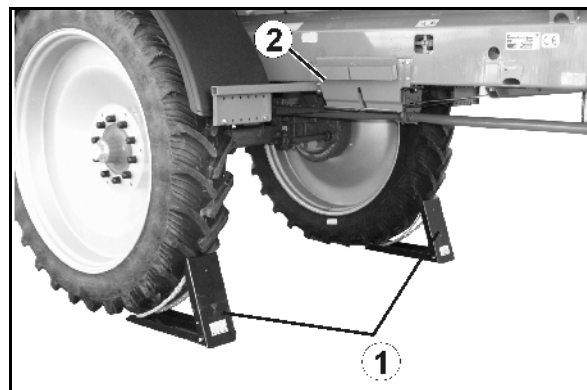


Fig. 21

5.7 Drawbars



If using automatic trailer couplings, check that the connection is secure after coupling. If using non-automatic trailer couplings, secure the coupling pin positively after inserting it.

The **ZG-B** is equipped with a spring-suspended drawbar and is height-adjustable.

The bulk fertiliser spreader can be equipped with a:

- Drawbar (Fig. 22) with overrun brake and automatic reversing
- Straight drawbar (Fig. 23),
- Cranked hitch drawbar (Fig. 24),
- Trail-Tron track follow drawbar (Fig. 25)



- The yoke bar is fastened in the tractor pin coupling.
- The hitch drawbar is fastened in the tractor hitch hook.



Make sure that there is sufficient manoeuvrability at the coupling point.



If the **ZG-B** is not standing with the frame angled level to the ground behind the tractor, after it has been coupled, the tractor coupling or towing eye on the spreader needs to be adjusted.



CAUTION

- Observe permissible drawbar load of yoke bar or tractor hitch coupling.
- When coupling, make sure that nobody is between the tractor and the bulk fertiliser spreader!
- When the bulk fertiliser spreader is coupled, the load is relieved from the front axle of the tractor. Be sure to comply with the required front axle load of the (20% of the tractor empty weight).

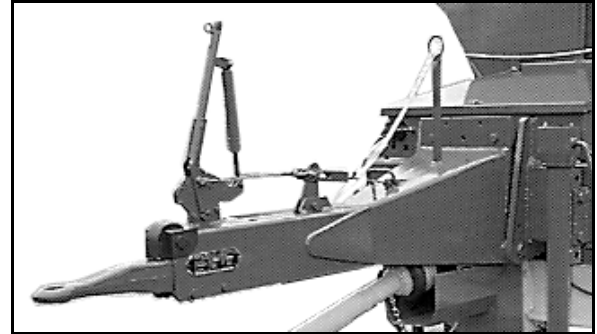


Fig. 22

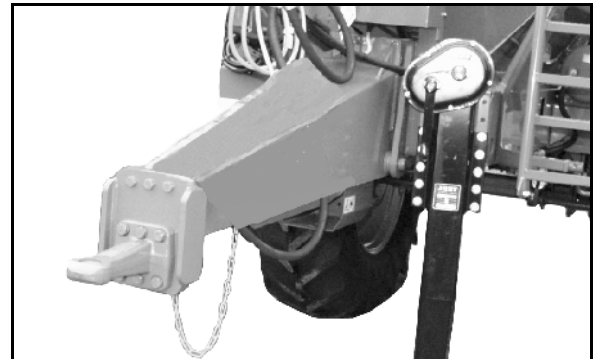


Fig. 23

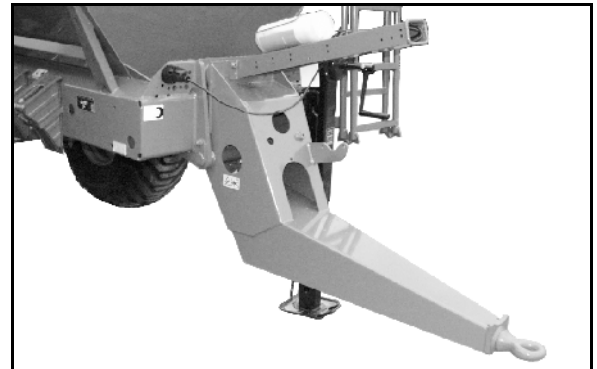


Fig. 24

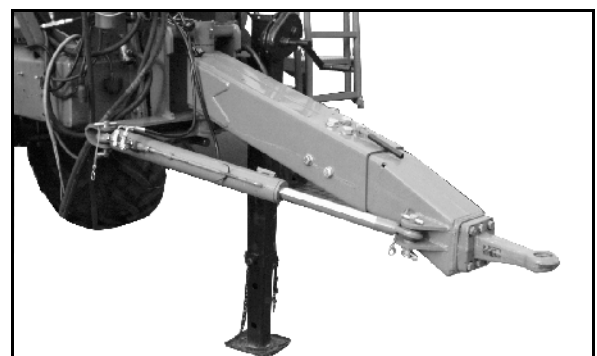


Fig. 25

5.8 Trail-Tron tracking control

Trail-Tron tracking control for automatic, virtually 100% precise tracking captures the position of the angle of the drawbar (Fig. 26/1) to determine the direction of travel of the tractor.

If the position of the drawbar deviates from the tractor's central position (drawbar lined up with tractor's direction of travel), Trail-Tron controls the tracking steering drawbar until the central position is reached again.

Hydraulic control is operated by the **AMATRON⁺**.

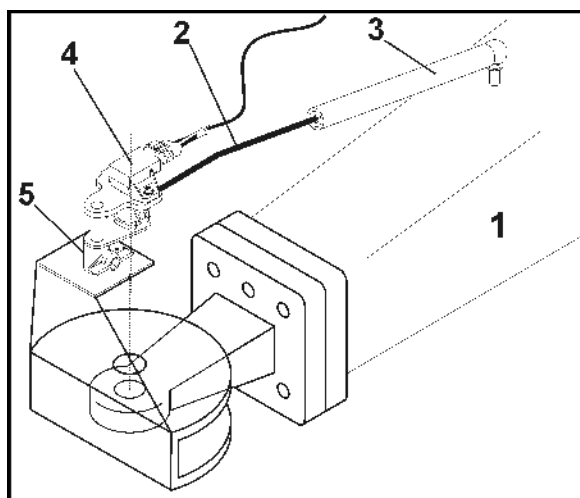


Fig. 26



See also: **AMATRON⁺** operating manual.

Connecting the Trail-Tron position encoder

1. Insert the rod (Fig. 26/2) into the plastic bush (Fig. 26/3).
2. Insert the position encoder (Fig. 26/4) into the holder (Fig. 26/5).
3. Align potentiometer in direction of travel (cable to rear) and secure with a locking screw against rotation.



A precondition for the perfect functioning of the hydraulically operated tracking drawbar is a correctly performed Trail-Tron calibration

Perform a Trail-Tron calibration

- before initial operation.
- if there are any deviations between the following steering axle control shown on the display and the actual following steering drawbar control.



DANGER

The use of the Trail-Tron steering drawbar

- for precise tracking on sloping terrain is prohibited.
Only use the Trail-Tron steering drawbar on level ground.
Unevenness of a maximum 5° (due to furrows) is permitted.
- for manoeuvring while reversing is prohibited.

Risk of the machine tipping over when the steering drawbar is pushed in; particularly on very uneven or sloping terrain.

With a loaded or partially loaded machine with tracking steering drawbar, there is a risk of tipping over when performing a turning manoeuvre on a headland at high speeds, due to the shifting of the centre of gravity when the steering drawbar is pushed in. The risk of tipping over is especially great when travelling downhill on sloping terrain.

Adapt your driving accordingly and reduce speed when performing a turning manoeuvre on a headland, so that you are in complete control of the tractor and machine.



Damage to the PTO shaft owing to excessive bending with **ZG-B** with Trail-Tron on account of incorrect installation of the PTO shaft.

- Use with Trail-Tron: install wide-angle PTO shaft on machine side.
- Use without Trail-Tron: install wide-angle PTO shaft on tractor side.

Transportation



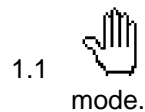
DANGER

Risk of accident from tipping of the machine!

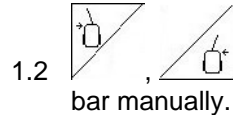
- The following are prohibited with Trail-Tron switched on:
 - Manoeuvring
 - Road travel
- For transportation, set the steering drawbar to the transport position!

1. Set the steering drawbar to central position (steering drawbar is flush with machine).

To do this:



- 1.1 Put Trail-Tron into manual mode.



- 1.2 Align the steering drawbar manually.

→ Trail-Tron stops automatically once the central position has been reached.

2. Switch off **AMATRON⁺**.
 3. Switch off tractor control unit 1 (hose marking 1 x red).
- Switch off oil circulation.
4. Secure the steering drawbar by setting the stop tap (Fig. 27/1) to position **0**.

Before using the machine, set the stop tap to position **I**.

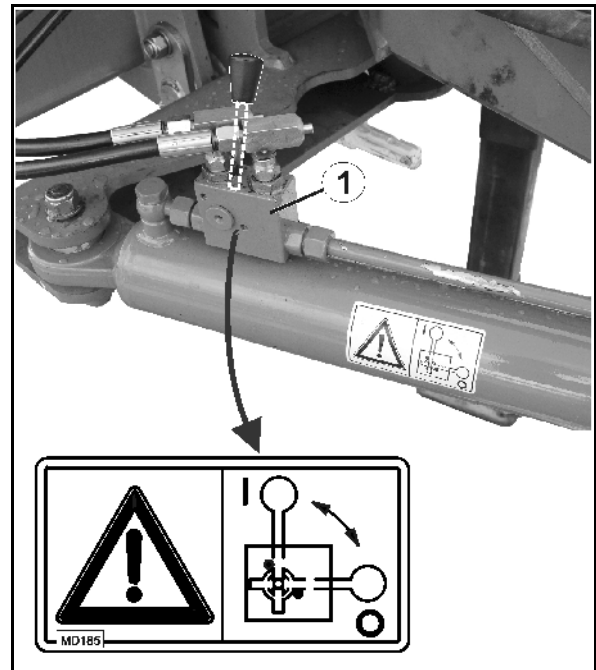


Fig. 27



CAUTION

Risk of collision between tractor wheel and hydraulic cylinder of steering drawbar.

The right-hand steering limit for the tractor with the steering drawbar in transport position is restricted!

5.9 Hydraulic joints



WARNING

Danger of infection from escaping hydraulic fluid at high pressure!

When coupling and uncoupling the hydraulic hose lines, ensure that the hydraulic system is depressurised on both the machine and tractor sides.

If you are injured by hydraulic fluid, contact a doctor immediately.



All the hydraulic hose lines possess the following coloured markings to allow assignment of the appropriate hydraulic function to the pressure hose of a tractor control unit.

Tractor control unit		Function	Hose marking
1	Single acting with priority control	Oil circulation	1 x red
Pressure-free return flow			2 x red

Maximum permissible pressure in oil return: 10 bar

Therefore do not connect the oil return to the tractor control unit, but to a pressure-free oil return flow with a large plug coupling.



WARNING

For the oil return, use only DN16 lines and select short return paths.

Pressurise the hydraulic system only when the free return has been correctly coupled.

Install the coupling union (supplied) on the pressure-free oil return flow.

5.9.1 Coupling the hydraulic hose lines



WARNING

Risk of contusions, cutting, catching, drawing in and knocks from faulty hydraulic functions when the hydraulic hose lines are connected incorrectly!

When coupling the hydraulic hose lines, observe the coloured markings on the hydraulic connectors.



- Check the compatibility of the hydraulic fluids before connecting the machine to the hydraulic system of the tractor.
Do not mix any mineral oils with biological oils.
- Observe the maximum approved hydraulic fluid pressure of 200 bar.
- Only couple clean hydraulic connectors.
- Plug the hydraulic connector(s) into the hydraulic sleeves, until the hydraulic connector(s) audibly lock.
- Check the coupling points of the hydraulic hose lines for a correct, tight seat.

1. Swivel the actuation lever on the spool valve on the tractor to float position (neutral position).
2. Clean the hydraulic connectors of the hydraulic hose lines before you couple the hydraulic hose lines to the tractor.
3. Connect the hydraulic hose line(s) to the tractor control unit(s).

5.9.2 Decoupling the hydraulic hose lines

1. Swivel the actuation lever on the tractor control unit on the tractor to float position (neutral position).
2. Unlock the hydraulic connectors from the hydraulic sockets.
3. Protect the hydraulic connector and hydraulic socket against soiling using the dust protection caps.
4. Place the hydraulic hose lines in the hose cabinet.

5.10 PTO shaft

The PTO shaft transmits power between the tractor and machine.

PTO shaft one side with wide angle (Fig. 28/1)

- Wide angle installed tractor side, standard
- Wide angle installed machine side with use of Trail-Tron.

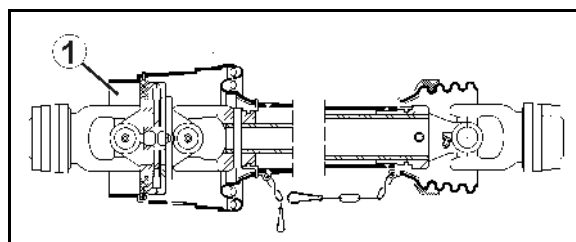


Fig. 28



WARNING

Danger of crushing from tractor and machine unintentionally starting up or rolling away!

Couple or decouple the PTO shaft and tractor only when tractor and machine have been secured against both unintentional starting and unintentional rolling away.



WARNING

Danger of catching or entrapment due to the unprotected gear-box input shaft owing to the use of a PTO shaft with a short PTO shaft guard!

Use only one of the listed permissible PTO shafts.



WARNING

Danger of trapping and entrapment by unguarded PTO shaft or damaged safety devices!

- Never use the PTO shaft if the safety device is missing or damaged, or without correctly using the supporting chain.
- Before all use, check that
 - all PTO shaft protective devices are installed and fully functional.
 - the clearance around the PTO shaft is sufficient in all operating modes. Insufficient clearance will result in damage to the PTO shaft.
- Attach the supporting chains in a way that ensures sufficient swivelling range of the PTO shaft in all operating positions. Supporting chains must not become caught on machine or tractor parts.
- Have any damaged or missing parts of the PTO shaft replaced immediately with OEM parts from the PTO shaft manufacturer. Note that only a specialist workshop may repair a PTO shaft.
- After decoupling the PTO shaft, place it on the holder provided. This protects the PTO shaft from damage and dirt.
 - Never use the supporting chain of the PTO shaft to suspend the uncoupled PTO shaft.



WARNING

Danger from being entangled and drawn in by unguarded PTO shaft parts in the power transmission area between the tractor and driven machine!

Work only when the drive between the tractor and driven machine is fully guarded.

- The unguarded parts of the PTO shaft must always be guarded by a shield on the tractor and a PTO shaft guard on the machine.
- Check that the shield on the tractor or the PTO shaft guard on the machine and the safety devices and guards of the extended PTO shaft overlap by at least 50 mm. If they do not, you must not power the machine via the PTO shaft.



- Use only the provided PTO shaft or one of the same type.
- Read and follow the operating manual provided for the PTO shaft. Correct use and maintenance of the PTO shaft prevents serious accidents.
- When coupling the PTO shaft
 - refer to the operating manual provided for the PTO shaft.
 - observe the permissible drive speed of the machine.
 - observe the correct installation length of the PTO shaft. Here, see the chapter "Adjusting the length of the PTO shaft to the tractor", page 72.
 - observe the correct installation position of the PTO shaft. The tractor symbol on the protective tube of the PTO shaft identifies the tractor-side connection of the PTO shaft.
- Always mount the overload or freewheel clutch on the machine if the PTO shaft has an overload or freewheel clutch.
- Before switching on the universal joint shaft, read and follow the safety precautions for universal joint shaft operation in the chapter entitled "Safety information for the user", page 23.



On account of unfavourable geometry on the tractor in connection with large wheels on the **ZG-B** the PTO shaft and flange of the towing eye may collide.

As a remedy, an offset drive unit is available, order number: 935060.

5.10.1 Coupling the PTO shaft

**WARNING**

Danger from crushing or impact if there is insufficient clearance when coupling the PTO shaft!

Couple the PTO shaft with the tractor before coupling the machine with the tractor. This will ensure the necessary clearance for safe coupling of the PTO shaft.

1. Drive the tractor up to the machine, leaving a clearance of approximately 25 cm between the tractor and the machine.
2. Secure the tractor against unintentional starting and rolling away, see the chapter "Securing the tractor against unintentional starting and rolling away", from page 74.
3. Check whether the universal joint shaft of the tractor is switched off.
4. Clean and grease the tractor's universal joint shaft.
5. Fit the latch of the PTO shaft over the universal joint shaft of the tractor until the latch is heard to engage. When coupling the PTO shaft, refer to the operating manual provided for the PTO shaft and observe the permissible universal joint shaft speed of the tractor.
6. Secure the PTO shaft guard using the supporting chain(s) to prevent movement.
 - 6.1 Fasten the supporting chain(s) so that it is as perpendicular to the PTO shaft as possible.
 - 6.2 Attach the supporting chain(s) in a way that ensures sufficient swivelling range of the PTO shaft in all operating positions.



Supporting chains must not become caught on machine or tractor parts.

7. Check that there is sufficient clearance around the PTO shaft in all operational positions. Insufficient clearance will result in damage to the PTO shaft.
8. Provide the necessary clearance (if required).

5.10.2 Uncoupling the PTO shaft

**WARNING**

Danger from crushing or impact if there is insufficient clearance when uncoupling the PTO shaft!

First uncouple the machine from the tractor before uncoupling the PTO shaft from the tractor. This will ensure the necessary clearance for safe uncoupling of the PTO shaft.

**CAUTION**

Danger from burns on hot components of the PTO shaft!

Do not touch components of the PTO shaft that have become hot (particularly clutches).



- After decoupling the PTO shaft, place it on the holder provided. This protects the PTO shaft from damage and dirt. Never use the supporting chain of the PTO shaft to suspend the uncoupled PTO shaft.
- Clean and lubricate the PTO shaft if it will not be used for an extended period.

1. Uncouple the machine from the tractor. Also refer to the chapter "Uncoupling the machine", page 80.
2. Drive the tractor up to the machine, leaving a clearance of approximately 25 cm between the tractor and the machine.
3. Secure the tractor against unintentional starting and rolling away, see the chapter "Securing the tractor against unintentional starting and rolling away", from page 74.
4. Pull the latch of the PTO shaft off the universal joint shaft of the tractor. Observe the operating manual supplied with the PTO shaft when uncoupling the PTO shaft.
5. Place the PTO shaft in the holder provided.
6. Clean and lubricate the PTO shaft if it is not going to be used for a longer period of time.

5.11 **AMATRON⁺** on-board computer

The **AMATRON⁺** on-board computer (Fig. 29) controls, operates and monitors the **ZG-B** in a convenient manner.

The hydraulic functions are operated using the **AMATRON⁺**:

- o Open and close the shutters.
- o Spread rate setting with the dosing shutter
- o Control of the Trail-Tron drawbar
- o Activating and deactivating the **Limiter**.
- o Open and close the hopper covers.

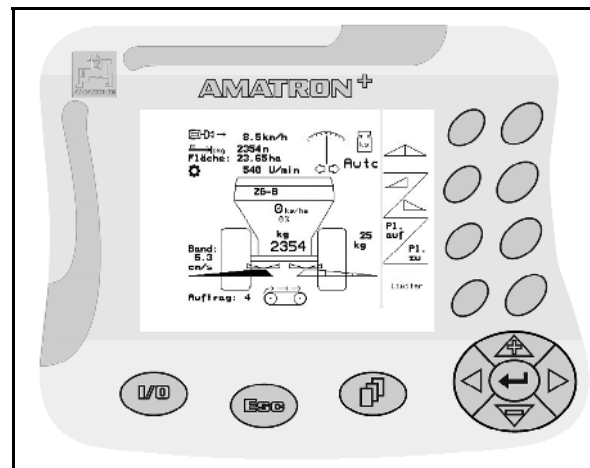


Fig. 29

To start up the **ZG-B Precis**, the basic data for the relevant machine type must be selected in the Setup menu on the **AMATRON⁺** (Fig. 30).

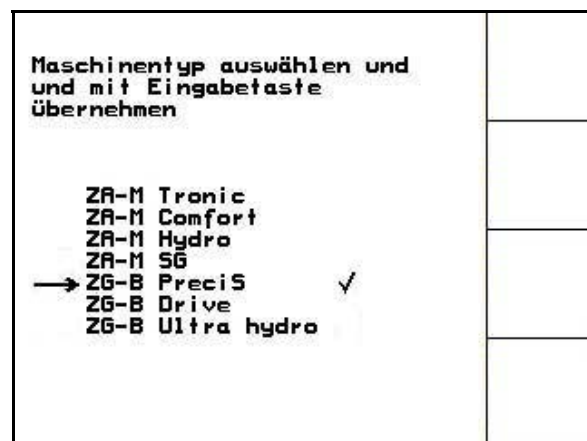


Fig. 30

5.12 Spreader discs OM

When using OM spreader discs, (Fig. 31/1) the working width can be infinitely adjusted by swivelling the spreading vanes on the discs.

OM 18-24 spreader discs can be used for working widths of 15-24 m.

OM 24-36 spreader discs can be used for working widths of 24-36 m.

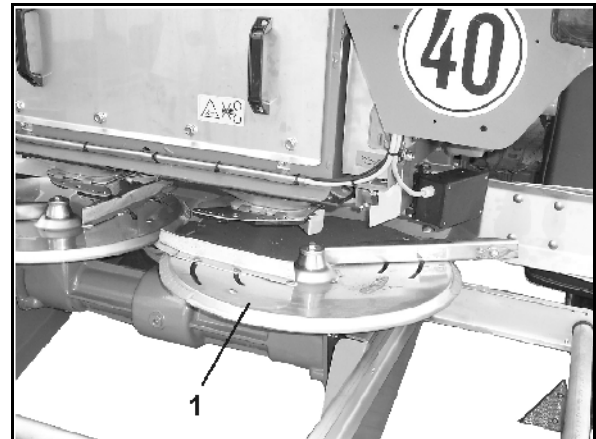


Fig. 31

As seen in the direction of travel:

- Left spreader disc (Fig. 32/1) with **L** mark.
- Right spreader disc (Fig. 32/2) with **R** mark.

Spreading vane:

- **Long** (Fig. 32/3) - Adjustment scale with values from 35 to 55.
- **Short** (Fig. 32/4) - Adjustment scale with values from 5 to 28.

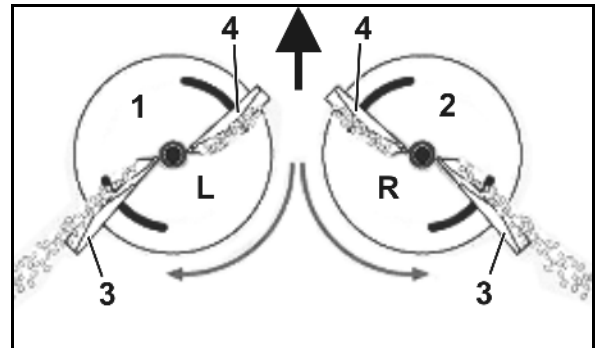


Fig. 32



The U-shaped spreading vanes are installed in such a way that the open sides point in the direction of rotation and take in the fertiliser.



Configure the settings using the information in the setting chart. You can easily check the configured working width using the mobile fertiliser test rig (optional).

5.13 Boundary and side spreading with the **Limiter**

With the border spread deflector **Limiter** (Fig. 33/1), both boundary and side spreading are possible if the first tramline is $\frac{1}{2}$ a working width from the edge of the field. The border spread deflector can be put into or taken out of operation hydraulically.

The border spread deflector must be set on the guide bracket as per the setting chart.

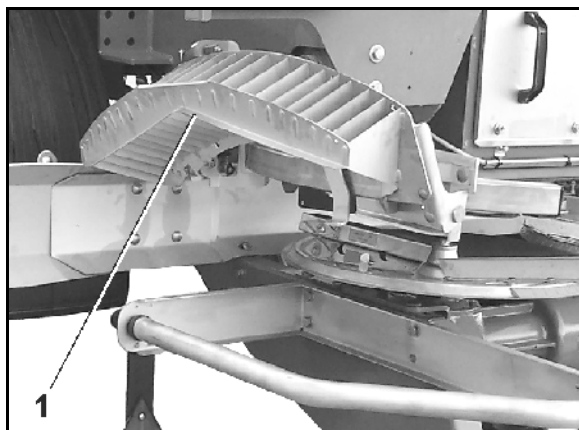


Fig. 33

5.14 Shutter and dosing shutter

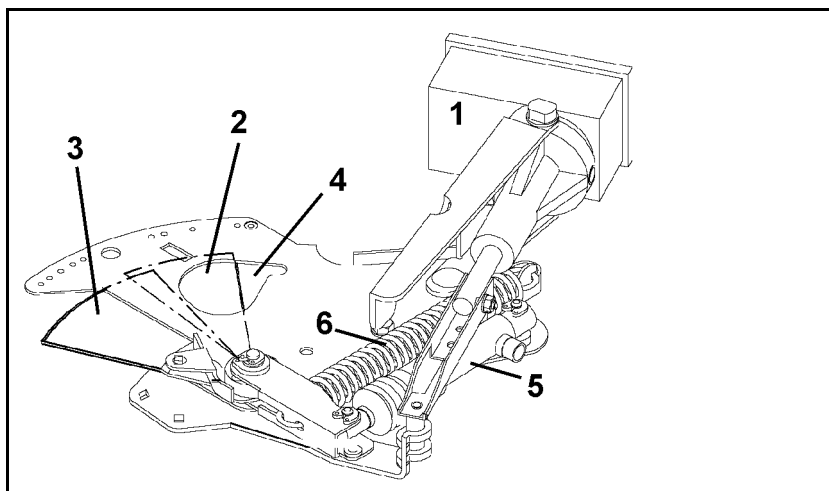


Fig. 34

Dosing shutter

The spread rate is set **electronically** with the on-board computer **AMATRON⁺**.

In this case, dosing shutter (Fig. 34/2) operated by setting motors (Fig. 34/1) release a range of different diameters at the outlet openings (Fig. 34/3).

Shutter (Fig. 34/3)

The outlet openings are controlled hydraulically by two further shutters (closing) (Fig. 34/5) or by a tension spring (opening) (Fig. 34/6).

5.15 Belt conveyor driven hydraulically

The product is transported by belt conveyor from the hopper via the fertiliser antechamber with its flap controller to the spreader units.

Fig. 35/...

- (1) Belt conveyor
- (2) Flap controller

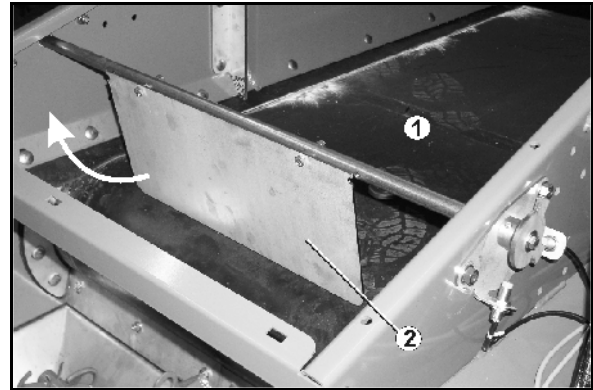


Fig. 35

The belt conveyor is driven hydraulically by a gearbox.

Fig. 36/...

- (1) Hydraulic motor
- (2) Gearbox

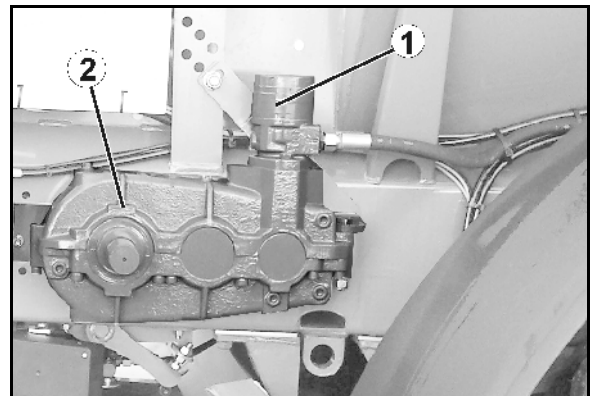


Fig. 36

5.16 Hydraulically driven spiral agitators

The spiral agitators (Fig. 37/1) in the hopper tips ensure uniform fertiliser flow to the spreader discs.

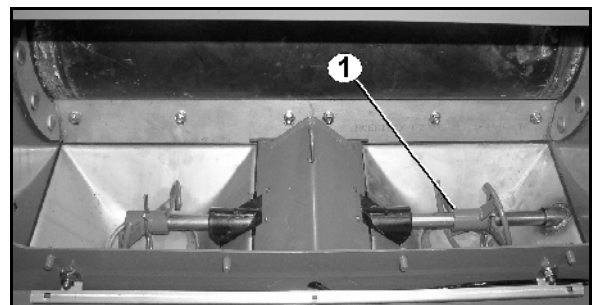


Fig. 37

5.17 Weighing technology

The machine can be equipped with a weighing device with 3 weighing cells (Fig. 38/1 and Fig. 38/2) to:

- o Determine tank capacity (fill level check)
- o Check the seed rate calibration value

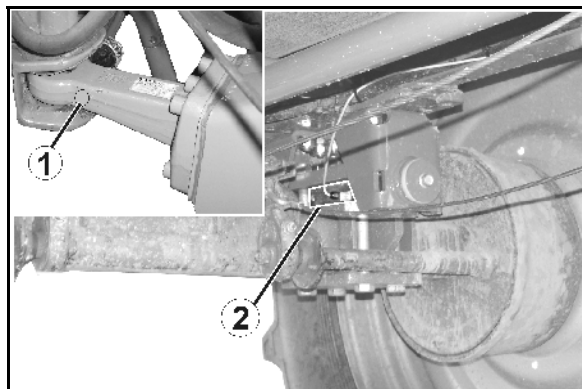


Fig. 38

5.18 Foldable ladder

The foldable ladder (Fig. 39/1) enables a user to comfortably ascend the hopper for cleaning purposes.



Warning

Keep the ladder folded in and locked when the vehicle is in motion (Fig. 39/2).

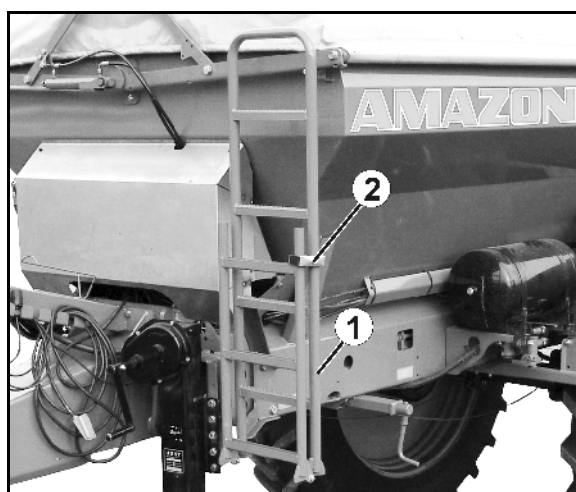


Fig. 39

5.19 Charging sieves

The foldable charging sieves (Fig. 40/1) cover the entire hopper and protect against foreign particles and fertiliser clods during filling.

The charging sieves can be trodden on in order to clean the inside of the hopper.

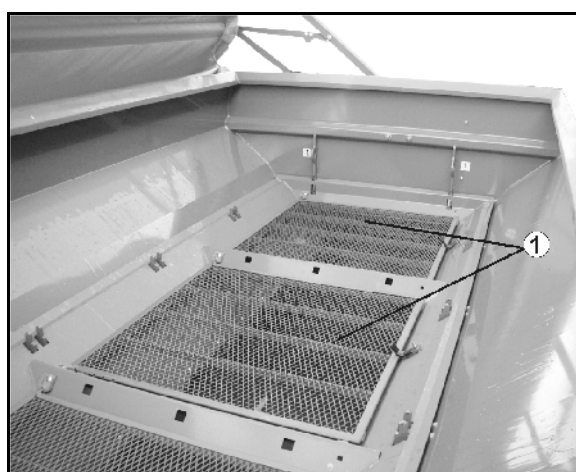


Fig. 40

5.20 Stand

Raising the stand after coupling

1. Wind up the stand (Fig. 41/1) to the limit stop using the hand crank (Fig. 41/2).
2. Pull the pins (Fig. 41/3) out of the stand.
3. Raise the stand.
4. Insert the pins in the lower hole (Fig. 41/4) and secure them.

Lowering the stand before coupling

1. Hold the inside of the stand steady and pull the pins (Fig. 41/3) out of the stand.
2. Lower the stand.
3. Insert the pins in the upper hole and secure them.
4. Wind down the stand (Fig. 41/1) to the limit stop using the hand crank (Fig. 41/2) until the load is relieved from the yoke bar.

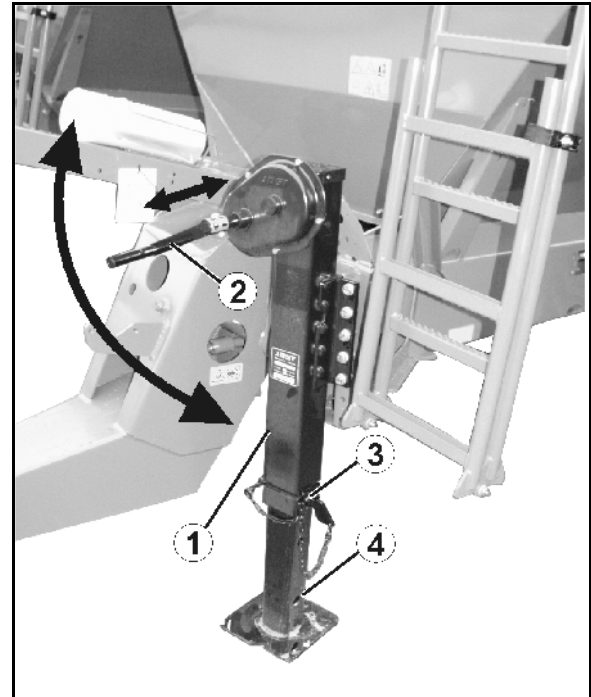


Fig. 41



The stand with crank has a fast and slow gear (Fig. 42).

- Pull out manual crank – fast gear for stand.
- Push in manual crank – slow gear for stand (high loads).

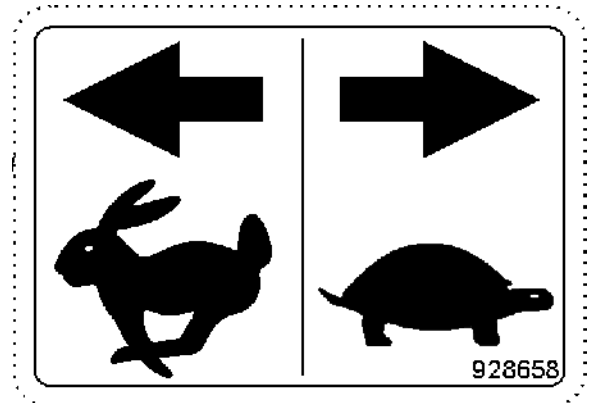


Fig. 42



After operating the crank, swivel the hand lever upwards as in Fig. 43.

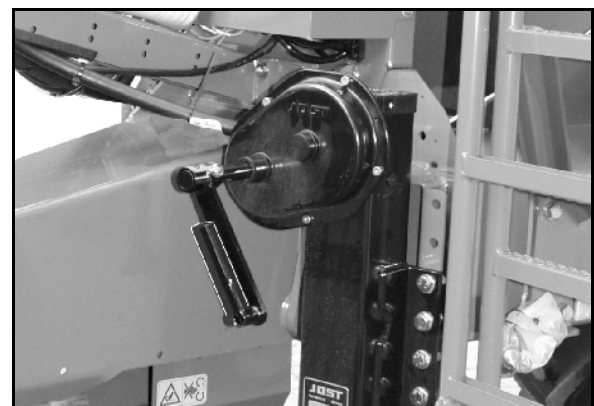


Fig. 43

5.21 Swivelable hopper cover (optional)

The swivelable hopper cover can be swivelled hydraulically or manually.



Fig. 44

5.22 Hydraulic control block and machine computer

The valves of the hydraulic control block are actuated via the **AMATRON⁺**, thus ensuring all the hydraulic functions.

Depending on the equipment, the adjustable hydraulic throttles for the hydraulic swivelable hopper cover can be found on the hydraulic control block.

The oil filter is equipped with a contamination indicator and must be changed accordingly.

Fig. 45/...

- (1) Cover for hydraulic block and machine computer
- (2) Oil filter

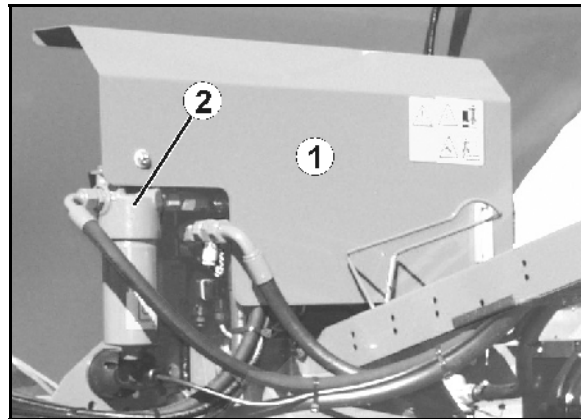


Fig. 45

6 Commissioning

This section contains information

- on commissioning your machine.
- on checking how you may connect the machine to your tractor.



- Before operating the machine for the first time the operator must have read and understood the operating manual.
- Comply with the chapter "Safety information for the operator", from Page 23 when
 - connecting and disconnecting the machine
 - transporting the machine
 - using the machine
- Only couple and transport the machine to/with a tractor which is suitable for the task.
- The tractor and machine must meet the national road traffic regulations.
- The operator and the operator shall be responsible for compliance with the statutory road traffic regulations.



WARNING

Risk of contusions, cutting, catching, drawing in and knocks in the area of hydraulically or electrically actuated components.

Do not block the operator controls on the tractor which are used for hydraulic and electrical movements of components, e.g. folding, swivelling and pushing movements. The movement must stop automatically when you release the appropriate control. This does not apply to equipment movements that:

- are continuous or
- are automatically locked or
- require a floating position or pressed position to function

6.1 Checking the suitability of the tractor



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

- Check the suitability of your tractor, before connecting the machine to the tractor.
You may only connect the machine to tractors suitable for the purpose.
- Carry out a brake test to check whether the tractor achieves the required braking delay with the machine connected.

Requirements for the suitability of a tractor are, in particular:

- The permissible total weight
- The approved axle loads
- The approved drawbar load at the tractor coupling point
- The load capacity of the installed tyres
- The approved trailer load must be sufficient

You can find this data on the rating plate or in the vehicle documentation and in the tractor operating manual.

The front axle of the tractor must always be subjected to at least 20 % of the empty weight of the tractor.

The tractor must achieve the brake delay specified by the tractor manufacturer, even with the machine connected.

6.1.1 Calculating the actual values for the total tractor weight, tractor axle loads and load capacities, as well as the minimum ballast



The permissible total tractor weight, specified in the vehicle documentation, must be greater than the sum of the

- Tractor empty weight,
- ballast weight and
- total weight of the connected machine or drawbar load of the connected machine



This information is only valid for the Federal Republic of Germany:

If, having tried all possible alternatives, it is not possible to comply with the axle loads and / or the permissible total weight, then a survey by an officially-recognised motor traffic expert can, with the approval of the tractor manufacturer, be used as a basis for the responsible authority to issue an exceptional approval according to § 70 of the German Regulations Authorising the Use of Vehicles for Road Traffic and the required approval according to § 29, paragraph 3 of the German Road Traffic Regulations.

6.1.1.1 Data required for the calculation

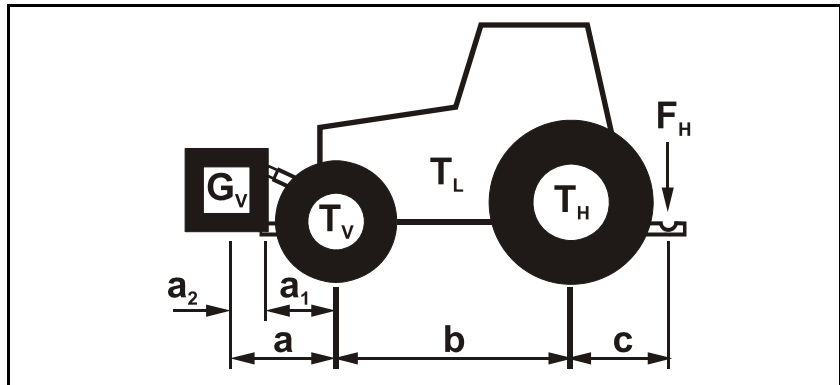


Fig. 46

T_L	[kg]	Tractor empty weight	See tractor operating manual or vehicle documentation
T_V	[kg]	Front axle load of the empty tractor	
T_H	[kg]	Rear axle load of the empty tractor	
G_V	[kg]	Front weight (if available)	See front weight in technical data, or weigh
F_H	[kg]	Maximum drawbar load	See technical data of machine
a	[m]	Distance between the centre of gravity of the front machine mounting or the front weight and the centre of the front axle (total $a_1 + a_2$)	See technical data of tractor and front machine mounting or front weight or measurement
a_1	[m]	Distance from the centre of the front axle to the centre of the lower link connection	See tractor operating manual or measurement
a_2	[m]	Distance between the centre of the lower link connection point and the centre of gravity of the front machine mount or front weight (centre of gravity distance)	See technical data of front machine mounting or front weight or measurement
b	[m]	Tractor wheel base	See tractor operating manual or vehicle documents or measurement
c	[m]	Distance between the centre of the rear axle and the centre of the lower link connection	See tractor operating manual or vehicle documents or measurement

6.1.1.2 Calculation of the required minimum ballasting at the front $G_{V \min}$ of the tractor to assure the steering functions properly

$$G_{V \min} = \frac{F_H \cdot c - T_V \cdot b + 0,2 \cdot T_L \cdot b}{a + b}$$

Enter the numeric value for the calculated minimum ballast $G_{V \min}$, required on the front side of the tractor, in the table (section 6.1.1.7).

6.1.1.3 Calculation of the actual front axle load of the tractor $T_{V \text{ tat}}$

$$T_{V \text{ tat}} = \frac{G_V \cdot (a + b) + T_V \cdot b - F_H \cdot c}{b}$$

Enter the numeric value for the calculated actual front axle load and the approved tractor front axle load specified in the tractor operating manual in the table (section 6.1.1.7).

6.1.1.4 Calculation of the actual total weight of the combined tractor and machine

$$G_{\text{tat}} = G_V + T_L + F_H$$

Enter the numeric value for the calculated actual total weight and the approved total tractor weight specified in the tractor operating manual in the table (section 6.1.1.7).

6.1.1.5 Calculation of the actual rear axle load of the tractor $T_{H \text{ tat}}$

$$T_{H \text{ tat}} = G_{\text{tat}} - T_{V \text{ tat}}$$

Enter the numeric value for the calculated actual rear axle load and the approved tractor rear axle load specified in the tractor operating manual in the table (section 6.1.1.7).

6.1.1.6 Tyre load capacity

Enter the double value (two tyres) of the approved load capacity (see, for example, tyre manufacturer's documentation) in the table (section 6.1.1.7).

6.1.1.7 Table

	Actual value according to calculation	Approved value according to tractor operating manual	Double approved load capacity (two tyres)
Minimum ballast front / rear	<div style="border: 1px solid black; padding: 5px; display: inline-block;">/ kg</div>	--	--
Total weight	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	--
Front axle load	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>
Rear axle load	<div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>	≤ <div style="border: 1px solid black; padding: 5px; display: inline-block;">kg</div>



- You can find the approved values for the total tractor weight, axle loads and load capacities in the tractor registration papers.
- The actually calculated values must be less than or equal to (≤) the permissible values!


WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through insufficient stability and insufficient tractor steering capability and brake power.

It is forbidden to couple the machine to the tractor used as the basis for calculation, if

- one of the actual, calculated values is greater than the approved value.
- there is no front weight (if required) attached to the tractor for the minimum front ballast ($G_{V \min}$).



- You must use a front weight which is equal to at least the required minimum front ballast ($G_{V \min}$).

6.1.2 Requirements for tractor operation with attached machines



WARNING

Risk of breakage of components during operation through unapproved combinations of connecting equipment.

- Ensure:
 - that the connection fitting on the tractor possesses a permissible drawbar load sufficient for the actual drawbar load.
 - that the axle loads and weights of the tractor altered by the drawbar load are within the approved limits. If necessary, weigh them.
 - that the tractor's actual static rear axle load does not exceed the permissible rear axle load.
 - that the permissible total weight of the tractor is observed
 - that the approved load capacities of the tractor tyres are not exceeded

6.1.2.1 Combination options for connection fittings and towing eyes

Fig. 47 shows permitted combination options for joining the connection fitting on the tractor and the towing eye on the machine in relation to the maximum permitted drawbar load.

You will find the maximum permitted drawbar load in the vehicle documentation or on the rating plate on the connection fitting of your tractor.

Maximum permissible drawbar load	Connection fitting on the tractor	Towing eye on the fixed drawbar trailer
2,000 kg	Pin coupling DIN 11028 / ISO 6489-2	Towing eye 40 for hydraulic high-lift drawbar DIN 11043
	Non-automatic pin coupling DIN 11025	
3,000 kg - ≤ 40 km/h 2,000 kg - > 40 km/h	Trailer hook (hitch hook) ISO 6489-1	Towing eye (hitch ring) ISO 5692-1
	Trailer peg (Piton-fix) ISO 6489-4	
	Ball coupling 80	Ball bracket 80

Fig. 47

6.1.2.2 Calculating the actual D_C value for the combination to be coupled



WARNING

Risk of breakage of the connection fitting between tractor and machine due to improper use of the tractor.

Calculate the actual D_C value for your combination, made up of tractor and machine, to check whether the connection fitting on your tractor displays the required D_C value. The actual calculated D_C value for the combination must be less than or equal to (\leq) the given D_C value of the connection fitting of your tractor.

The actual D_C value of a combination to be coupled is calculated as follows:

$$D_C = g \times \frac{T \times C}{T + C}$$

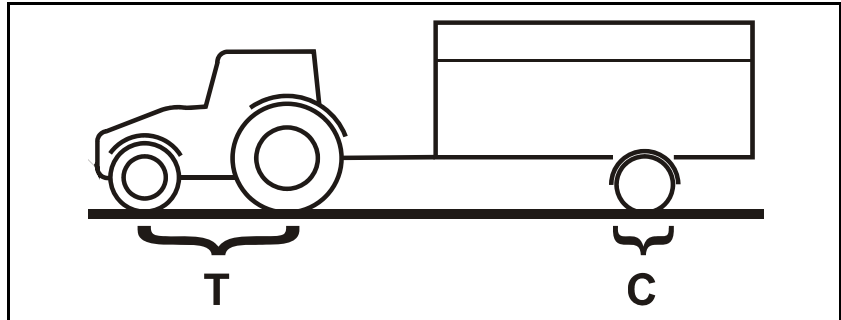


Fig. 48

- T:** Permissible total weight of your tractor in [t] (see tractor operating manual or registration papers)
- C:** Axle load of the machine loaded with the permitted mass (payload) in [t], without drawbar load
- g:** Acceleration due to gravity (9.81 m/s²)

Actual calculated
 D_C value for the combination

D_C value given on the tractor for the connection fitting

KN	≤	KN
----	---	----



You can find the D_C value for the connection fitting on the connection fitting itself / in the operating manual for your tractor.

6.1.3 Machines without their own brake system



WARNING

Risk of crushing, cutting, being caught or drawn in, or impact through the brake power of the tractor being inadequate.

The tractor must achieve the brake rate specified by the tractor manufacturer, even with the machine connected.

If the machine does not possess its own brake system:

- the actual tractor weight must be greater than or equal to (\geq) the actual weight of the connected machine
In many countries, other regulations apply. In Russia, for example, the weight of the tractor must be double that of the attached machine.
- the maximum operational speed is 25 km/h

6.2 Adjusting the length of the PTO shaft to the tractor



WARNING

Dangers exist from damaged and/or destroyed, flying parts if the PTO shaft is upended or pulls apart while the machine coupled to the tractor is being raised/lowered because the length of the PTO shaft has not been adjusted properly.

Have the length of the PTO shaft in all implement situations checked by a specialist workshop and, if necessary, adjusted before coupling the PTO shaft to your tractor for the first time.

In this way, you prevent upending of the PTO shaft or insufficient profile overlap.



This adjustment of the PTO shaft applies only for the current tractor type. You may need to readjust the PTO shaft if you couple the machine to another tractor. When adjusting the PTO shaft, it is mandatory to observe the operating manual from the PTO shaft manufacturer.



WARNING

Danger of being caught and drawn in if the PTO shaft is installed incorrectly or if unauthorised constructive changes are made.

Only a specialist workshop may make constructive changes to the PTO shaft. When doing so, read and follow the operating manual from the manufacturer.

Adjusting the length of the PTO shaft is permitted with consideration of the minimum profile overlap.

Constructive changes to the PTO shaft that are not described in the operating manual from the PTO shaft manufacturer are not permitted.



WARNING

Danger of being crushed between the rear of the tractor and the machine when raising and lowering the machine to determine the shortest and longest operating position of the PTO shaft.

Only actuate the operator controls for the tractor's three-point hydraulic system

- from the intended workstation.
- if you are outside of the danger area between the tractor and the machine.



WARNING

Danger of crushing from unintentional:

- **Rolling of the tractor and the connected machine!**
- **Lowering of the lifted machine!**

Secure the tractor and machine from unintentional starting and unintentional rolling and secure the machine unintentional lowering before entering the danger zone between the tractor and lifted machine in order to adjust the PTO shaft.



The PTO shaft is at its shortest when it is horizontally. The PTO shaft is at its longest when the machine is fully lifted.

1. Couple the tractor to the machine (do not connect the PTO shaft).
2. Apply the tractor's parking brake.
3. Determine the clearance height of the machine with the shortest and longest operating position for the PTO shaft.
 - 3.1 To do so, raise and lower the machine via the tractor's three-point hydraulic system.

While doing so, actuate the manual controls for the tractor's three-point hydraulic system on the rear of the tractor, from the provided workstation.
4. Secure the machine, lifted in the measured clearance height, against unintentional lowering (for example, by supporting it or hooking it to a crane).
5. Secure the tractor from unintentional starting before entering the danger area between the tractor and machine.
6. When measuring the length and shortening the PTO shaft, read and follow the operating manual from the PTO shaft manufacturer.
7. Put the shortened halves of the PTO shaft back together.
8. Grease the universal joint shaft of the tractor and the gearbox input shaft before connecting the PTO shaft.

The tractor symbol on the protective tube of the PTO shaft identifies the tractor-side connection of the PTO shaft.

6.3 Securing the tractor / machine against unintentional start-up and rolling



WARNING

Risk of contusions, cutting, catching, drawing in and knocks when making interventions in the machine through

- **Unintentional falling of the unsecured machine raised using the tractor's three-point hydraulic system.**
- **Unintentional falling of raised, unsecured machine parts.**
- **Unintentional start-up and rolling of the tractor-machine combination.**
- Secure the tractor and the machine against unintentional start-up and rolling before any intervention in the machine.
- It is forbidden to make any intervention in the machine, such as installation, adjustment, troubleshooting, cleaning, maintenance and repairs
 - When the machine is running
 - For as long as the tractor engine is running with a connected PTO shaft / hydraulic system.
 - When the ignition key is inserted in the tractor and the tractor engine with the connected PTO shaft / hydraulic system could be started unintentionally.
 - When the tractor and machine are not secured against unintentional rolling using their parking brakes and/or wheel chocks.
 - When moving parts are not blocked against unintentional movement.

When carrying out such work, there is a high risk of contact with unsecured components.

1. Lower the raised, unsecured machine / raised, unsecured parts of the machine.
- This is how to prevent unintentional falling:
2. Shut down the tractor engine.
 3. Remove the ignition key.
 4. Apply the tractor's parking brake.
 5. Secure the machine against unintentional rolling (only attached machine)
 - On flat ground using the parking brake (if available) or wheel chocks.
 - On uneven ground or slopes using the parking brake and wheel chock.

6.4 Fitting wheels



If the machine is fitted with inflatable spare tyres, running wheels must be fitted before putting into operation.



WARNING

- Only one permitted set of tyres may be used, as specified in the technical data (see page 37).
- Wheel rims that are suitable for the tyres used must have a rim that has been fully welded all the way round.

1. Lift machine slightly using lifting crane.



DANGER

Use the attachment points marked for lifting belts.

See also "Loading" section, page 32.

2. Loosen wheel nuts on the inflatable spare tyres.
3. Remove inflatable spare tyres.



CAUTION

Take care when removing the inflatable spare tyres and putting the running wheels in place.

4. Place the running wheels on threaded bolts.
5. Tighten wheel nuts.



Required tightening torque for wheel nuts: 510 Nm.

6. Lower machine and remove lifting belts.
7. After 10 hours of operation, tighten the wheel nuts.

6.5 Initial operation of service brake system



Perform a brake test while the machine is empty, and again when it is loaded to test the braking behaviour of the tractor with coupled machine.

We recommend that you have a specialist workshop balance the brakes on the tractor and the machine in order to attain optimum braking and minimum wear to brake pads (see "Maintenance" section, page 125).

6.6 Adjusting the height of the machine drawbar

1. Uncouple the machine from the tractor (on page 80) and park it using the support.
2. Support the drawbar on a stable trestle (Fig. 49/1) and unscrew both securing screws (Fig. 49/2).
3. The spacer discs (Fig. 49/3) can be turned evenly to adjust the drawbar. The buffers (Fig. 49/4) must not be removed. They absorb any impact transferred from the tractor to the spreader.
4. Screw the drawbar tight (tightening torque 540 Nm).

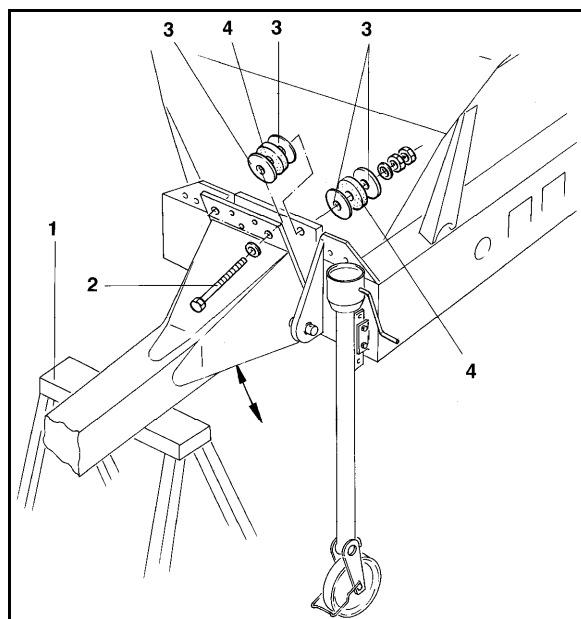


Fig. 49

6.7 Adjusting the system converting bolt on the hydraulic control block



Always adjust the system converting bolt to the hydraulic system on your tractor. Increased hydraulic fluid temperatures are the result of an incorrectly adjusted system converting bolt, caused by constant strain on the tractor hydraulics pressure relief valve.

Fig. 50/...

- (1) System converting bolt
- (2) LS connection for the load sensing control line

Fig. 51/...

- (1) Tractor connection for the load sensing control line
- (2) Tractor connection for the load sensing pressure hose
- (3) Tractor connection for the pressure-free return flow

The tractor hydraulic system determines the setting of the system converting bolt on the hydraulic block.

Depending on the tractor hydraulic system, the system converting bolt must be

- **screwed out** up to the stop (factory setting) on tractors with
 - open-centre hydraulic system (constant flow system, geared pump hydraulics).
 - setting pump with adjustable oil extraction via the control unit
- **screwed in** up to the stop (in contrast to the factory setting) on tractors with
 - closed-centre hydraulic system (constant pressure system, pressure-regulated setting pump).
 - load-sensing hydraulic system (pressure and power-controlled setting pump) with direct load-sensing pump connection. Using the flow control valve on the tractor, adjust the actual flow rate to the required flow rate.

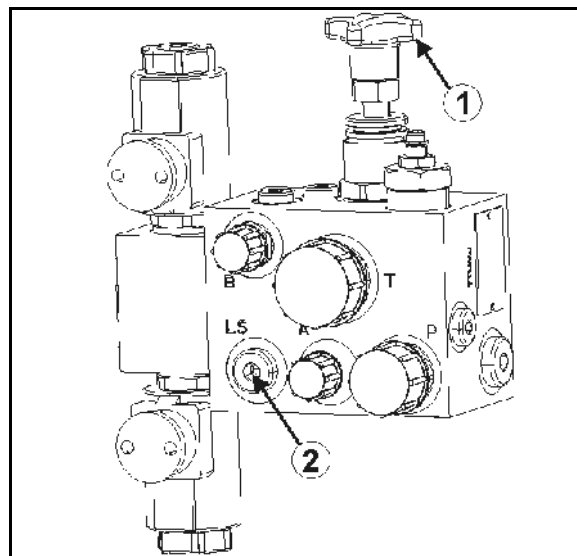


Fig. 50

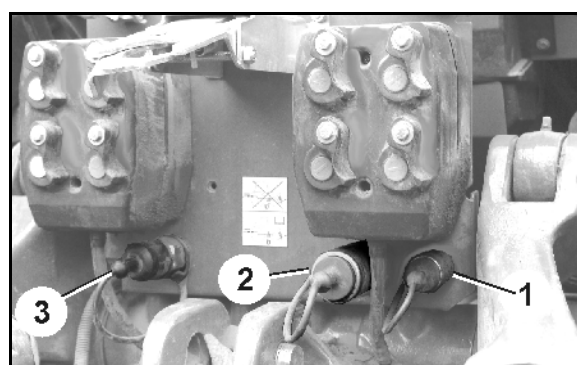


Fig. 51



- The machine must be depressurised before making adjustments.
- The hydraulic block can be found at the front of the machine, behind the cover plate.

6.8 Trail-Tron position encoder

ZG-B with Trail-Tron drawbar:

For the use of Trail-Tron, a holder for the position encoder (Fig. 52/1) must be fitted to the tractor.

The holder must be made according to the actual circumstances of the tractor with the sleeve with locking screw (Fig. 52/2) and metal plate (Fig. 52/3) provided.

When installed, the position encoder must be directly above the pivot point of the tractor pin coupling (Fig. 52/4).

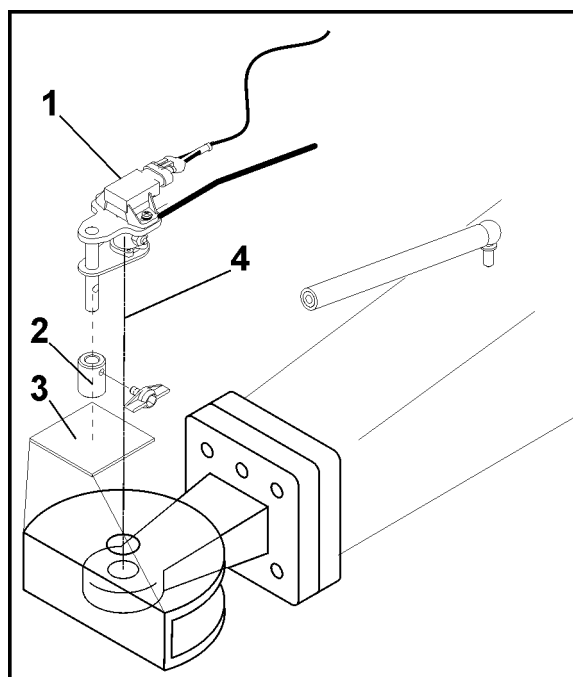


Fig. 52

7 Coupling and uncoupling the machine



When coupling and decoupling the machine, comply with the chapter "Safety information for the operator", page 23.



WARNING

Risk of contusions from unintentional starting and rolling of the tractor and machine when coupling or uncoupling the machine!

Secure the tractor and machine against unintentional start-up and rolling, before entering the danger area between the tractor and machine when coupling or decoupling the machine. See also Page 74.

7.1 Coupling the machine



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

You may only connect the machine to tractors suitable for the purpose. For this, see the chapter "Checking the suitability of the tractor", page 66.



WARNING

Risk of contusions when coupling the machine and standing between the tractor and the machine!

Instruct people to leave the danger area between the tractor and the machine before you approach the machine.

Any helpers may only act as guides standing next to the tractor and the machine, and may only move between the vehicles when both are at a standstill.



WARNING

Risk of crushing, being caught or pulled in, or impact when the machine is unexpectedly released from the tractor.

Use the intended equipment to connect the tractor and the machine in the proper way.



WARNING

Risk of energy supply failure between the tractor and the machine through damaged supply lines!

During coupling, check the course of the supply lines. The supply lines

- must give slightly without tension, bending or rubbing on all movements of the connected machine.
- may not scour other parts.

Coupling and uncoupling the machine

1. Direct people away from the danger area between the tractor and machine before you approach the machine with the tractor.
2. Couple the supply lines first before coupling the machine with the tractor.
 - 2.1 Drive the tractor up to the machine, leaving a clearance of approximately 25 cm between tractor and machine.
 - 2.2 Secure the tractor against unintentional starting and unintentional rolling.
 - 2.3 Check whether the universal joint shaft of the tractor is switched off.
 - 2.4 Couple the PTO shaft and supply lines with the tractor.
 - 2.5 Connect the Trail-Tron position encoder.
3. Now reverse the tractor towards the machine so that the connection fitting can be coupled.
4. Couple the connection fitting.
5. Lift the stand into transport position.
6. Hydraulic brake/overrun brake: fasten the parking brake pulling cable to the tractor.
7. Remove wheel chocks, release the parking brake.

7.2 Uncoupling the machine



DANGER

- **Before uncoupling, always secure the machine with 2 wheel chocks.**
- **Risk of accident from the drawbar moving upwards and the machine tipping backwards!**
 - o Before uncoupling the **ZG-B**, make sure that uneven residue in the hopper is distributed evenly! Otherwise there is the risk of tipping!
 - o If the load is concentrated on one side at the rear, the bulk fertiliser spreader must not be uncoupled. As a single-axle vehicle, a load concentrated on one side at the rear leads to a risk of the bulk fertiliser spreader tipping over backwards.



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and possible tilting of the uncoupled machine!

Park the empty machine on a horizontal space with a hard surface.



When uncoupling the machine, there must always be enough space in front of the machine, so that you can align the tractor with the machine if necessary.

1. Park the machine in a level parking area on solid ground.
2. Uncouple the machine from the tractor.
 - 2.1 Secure the machine against unintentionally rolling. See page 74.
 - 2.1 Lower the stand to the parking position.
 - 2.2 **Uncouple** the connection fitting.
 - 2.3 Draw the tractor approximately 25 cm forwards.

The space created between the tractor and the machine allows better access for decoupling the PTO shaft and the supply lines.
 - 2.4 Secure the tractor and machine against unintentional starting and unintentional rolling.
 - 2.6 Uncouple the supply lines.
 - 2.7 Fasten the supply lines in the corresponding parking sockets.
 - 2.8 Remove the Trail-Tron position encoder.
 - 2.9 Hydraulic brake: detach parking brake pulling cable from tractor.

7.2.1 Manoeuvring the uncoupled machine

**DANGER**

You must be particularly careful when manoeuvring the machine with the service brake system released, since only the manoeuvring vehicle is now braking the machine.

The machine must be connected to the manoeuvring vehicle before you actuate the release valve on the trailer brake valve.

The manoeuvring vehicle must be braked.



The service brake system cannot be released using the release valve if the air pressure in the air reservoir drops below 3 bar (e.g. if the release valve has been actuated multiple times or if there are leaks in the brake system).

To release the service brake

- Fill the air reservoir.
- Remove all air from the braking system at the drain valve on the air reservoir.

1. Connect the machine to the manoeuvring vehicle.
2. Brake the manoeuvring vehicle.
3. Remove the wheel chocks and release the parking brake.
4. **Pneumatic braking system** only:
 - 4.1 Press in the actuator button on the release valve as far as it will go (see page 42).
 7. The service brake system is released and the machine can be manoeuvred.
 - 4.2 Once the manoeuvring procedure is finished, pull out the actuator button on the release valve as far as it will go.
 7. The pressure from the air reservoir brakes the machine again.
5. Actuate the brakes on the manoeuvring vehicle again once you have finished manoeuvring the machine.
6. Firmly apply the parking brake again and secure the machine against rolling with wheel chocks.
7. Uncouple the machine and manoeuvring vehicle.

8 Adjustments



When performing any adjustment work on the machine, observe the information in the following chapters

- "Warning symbols and other labels on the machine" from page 16 and
- "Safety information for the operator" from page 23.

Observing this information is important for your safety.



WARNING

Danger of, shearing, cutting, entrapment, entanglement, being drawn in, caught or struck during all adjustment work on the machine

- **due to unintentional contact with moving operating elements (spreading vanes of rotating spreader discs).**
- **due to tractor and connected machine unintentionally starting up or rolling away.**
- Secure the tractor and the machine against unintentional start-up and rolling, before adjusting the machine. See page 74.
- Only touch moving operating elements (rotating spreader discs) when they have come to a complete standstill.



WARNING

Risk of catching, trapping and knocks during all adjustment work on the machine due to unintentional lowering of the coupled and raised machine.

Secure the tractor cabin against entry of other persons to prevent unintentional actuation of the tractor's hydraulic system.

Configure all settings of the **AMAZONE ZG-B** bulk fertiliser spreader according to the information in the **setting chart**.

All common kinds of fertiliser on the market are spread in the **Amazone** spreading hall, and the setting data measured during this process is incorporated into the setting chart. The types of fertiliser listed in the setting chart were in perfect condition when the measurements were taken.

It may be necessary to adapt the information in the spreading table due to variations in fertiliser condition from:

- Effects of the weather and/or unfavourable storage conditions
- Fluctuations in the physical fertiliser properties, even within the same type and brand
- Changes in the spreading properties of the fertiliser

may mean that deviations from the information in the setting chart are necessary when setting the desired spread rate or working width. We cannot guarantee that your fertiliser will have identical spreading properties to that tested by us, even if it is the same kind and brand.



We expressly disclaim liability for consequential damages resulting from spreading errors.

Adjustments



Configure all settings with the utmost caution. Deviations from the optimum setting can have a negative effect on the spreading pattern.

The settings listed in the setting chart are intended solely as guide values, as the spreading properties of the fertiliser can change, making different settings necessary.

Only carry out adjustments and other work on the centrifugal broadcaster when the motor is switched off and the hydraulic system is depressurised. Remove the ignition key, secure the vehicle to prevent it from starting up inadvertently or rolling.

Wait until all moving machine parts have come to a complete standstill before making adjustments or carrying out other work on the machine.




For unknown kinds of fertiliser or a general check of the set working width, you can easily check the working width using the mobile fertiliser test rig (optional).






If you cannot definitively assign the fertiliser to a kind listed in the setting chart

- please refer to www.amazone.de → **Fertiliser Service** for the most up-to-date version of the setting chart,
- the **AMAZONE Fertiliser Service** will assist you over the telephone in assigning the fertilisers and setting recommendations.

 +49 (0) 54 05 / 501 111

- the **AMAZONE Fertiliser Service** will give recommendations on the setting after you send them a small sample of fertiliser (3 kg).
- please consult the contact partner in your country.

Contact partners in the respective countries:

					
(GB)	0044 1302 755720	(I)	0039 (0) 39652 100	(H)	0036 52 475555
(IRL)	00353 (0) 1 8129726	(DK)	0045 74753112	(HR)	00385 32 352 352
(F)	0033 892680063	(FIN)	00358 10 768 3097	(BG)	00359 (0) 82 508000
(B)	0032 (0) 3 821 08 52	(N)	0047 63 94 06 57	(GR)	0030 22620 25915
(NL)	0031 316369111	(S)	0046 46 259200	(AUS)	0061 3 9369 1188
(L)	00352 23637200	(EST)	00372 50 62 246	(NZ)	0064 (0) 272467506
				(J)	0081 (0) 3 5604 7644

8.1 Setting the spread rate



See the **AMATRON⁺** operating manual.

The **shutter position** required for the desired **spread rate** is adjusted electronically via the two rate sliders.

After entering the desired spread rate on the **AMATRON⁺** [specified quantity in kg/ha], the fertiliser calibration factor must be determined (spread rate check). It determines the spread rates set by the **AMATRON⁺**.



To achieve an optimum spread pattern, the universal joint shaft speed must be constantly maintained when spreading work is in progress.

8.2 Spread rate control (fertiliser calibration)

Spread rate control (Fig. 53/1) must be carried out:

- each time fertiliser is changed
- when spread rate is changed
- when working width is changed

Alternatively, the spread rate check is carried out:

- before use when the machine is stationary
- for **ZG-B** with weigh cell:
Carry out the spread rate check automatically during a calibration run.

Maschinentyp: ZG-B		Auftrag
Auftrags-Nr.: 2		Cal.
Sollmenge: 200 kg/ha		Maschi.
Cal.-Faktor: 1.01		Setup
Arbeitsbreite: 21.0 m		
vorg. Geschw.: 10 km/h		
Arbeitsmenü		

Fig. 53



See **AMATRON⁺** operating manual / section Calibrating fertiliser.



The fertiliser flow behaviour can change even after a the fertiliser has been stored for a short period.

Therefore, determine the fertiliser calibration factor for the fertiliser to be spread again before every use.

Always determine the fertiliser calibration factor again if deviations occur between the theoretical and actual spread rate.

8.2.1 Preparing spread rate check without weigh cell

The spread rate check is carried out at the left outlet opening.

1. Release the thumb bolts of the two spreader discs.
2. Remove the two spreader discs.
3. Refit the thumb bolts (so that no fertiliser drops into the tap hole).
4. Install calibration hopper (Fig. 54/3) between the bridge (Fig. 54/4) and distributor gearbox (Fig. 54/5) and push in up to the left gearbox shaft.
5. Place a calibration bucket under the left outlet opening to collect the fertiliser.

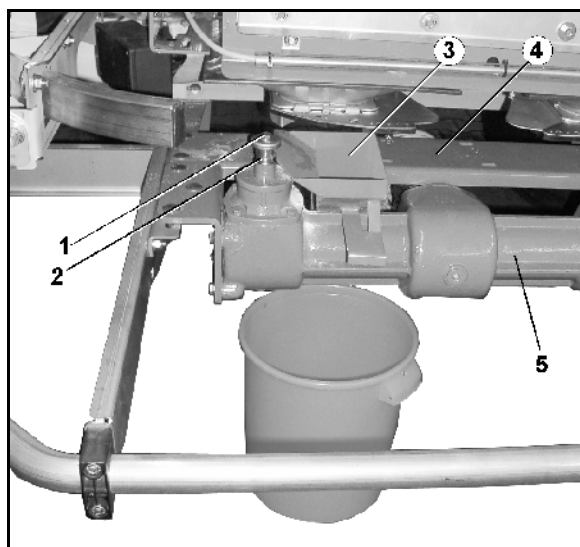


Fig. 54



WARNING

Danger of injury from rotating spreader disc!

Before carrying out the spread rate check, remove the two spreader discs.

8.3 Setting the working width



- There are different spreader disc pairs for the various working widths.
- The existing tramline system (distance between the tramlines) determines the selection of the required spreader disc pair.
- The working widths are adjustable within the working ranges of the respective Omnia Set (**OM**) spreader disc pairs (however, there may be deviations for the spreading of urea).
- The type of fertiliser and desired working width determine the setting of the pivotable spreading vanes.
The specific spreading properties of a fertiliser influence its throwing range. The pivotable spreading vanes allow the adjustment of these specific spreading properties of a fertiliser, so that the respective fertiliser can be spread over the desired working width.
- The type of fertiliser and desired working width determine the setting of the pivotable spreading vanes.
- The specific spreading properties of a fertiliser influence its throwing range and the fertiliser lateral distribution.
- The pivotable spreading vanes allow the adjustment of these specific spreading properties of a fertiliser, so that the respective fertiliser can be spread over the desired working width.

The primary factors that affect the spreading properties are:

- Granule size
- Bulk density
- Surface condition
- Humidity

We therefore recommend the use of a well granulated fertiliser by a renowned manufacturer and also checking of the working width setting using the mobile fertiliser test rig.

Working width	Spreader disc pair
18 - 24 m	OM 18 – 24
24 - 36 m	OM 24 – 36



WARNING

Danger of ejection of parts of the quick-release screw connection in event of incorrect tightening of the wing nut after the working width is set!

After setting the working width, always check whether you have manually retightened the wing nut of the quick-release screw connection.

8.3.1 Replacing the spreader discs



WARNING

Danger from materials or foreign objects that are thrown from or ejected by the machine at high speeds.

- Make sure that uninvolved persons are kept well clear of the danger area of the machine in the following situations:
 - Before you switch on the power for the spreader discs.
 - While the tractor engine is running.

1. Remove the thumb bolt (Fig. 55/1).
2. Rotate the spreader disc so that the 8 mm dia. disc hole (Fig. 55) is aligned with the centre of the machine.
3. Remove the spreader disc from the gearbox shaft.
4. Fit another spreader disc.
5. Secure the spreader disc by tightening the thumb bolt.

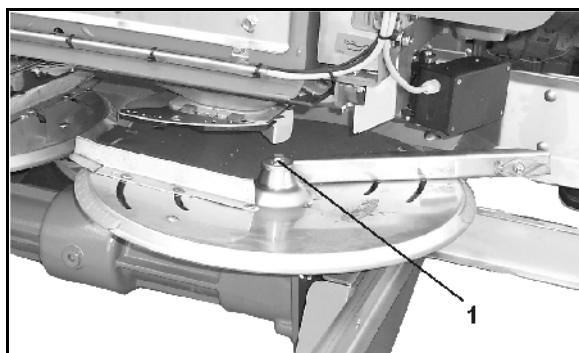


Fig. 55



- When fitting the spreader discs, do not confuse "left" and "right".
 - Right spreader disc with engraved **R**
 - Left spreader disc with engraved **L**
- The right gearbox shaft has a lock pin. Always install the right spreader disc with two grooves here.



The good condition of the spreading vanes is essential to ensure that the fertiliser is spread evenly on the field. The spreading vanes are therefore made of especially robust, partially non-corrosive material. However, wear of the spreading vanes must be expected. Replace the spreading vanes and spreader discs as soon as holes in the spreading vanes are noticeable.

Regularly remove residual fertiliser from spreading vanes and guide boards!

8.3.2 Adjusting the spreading vane positions

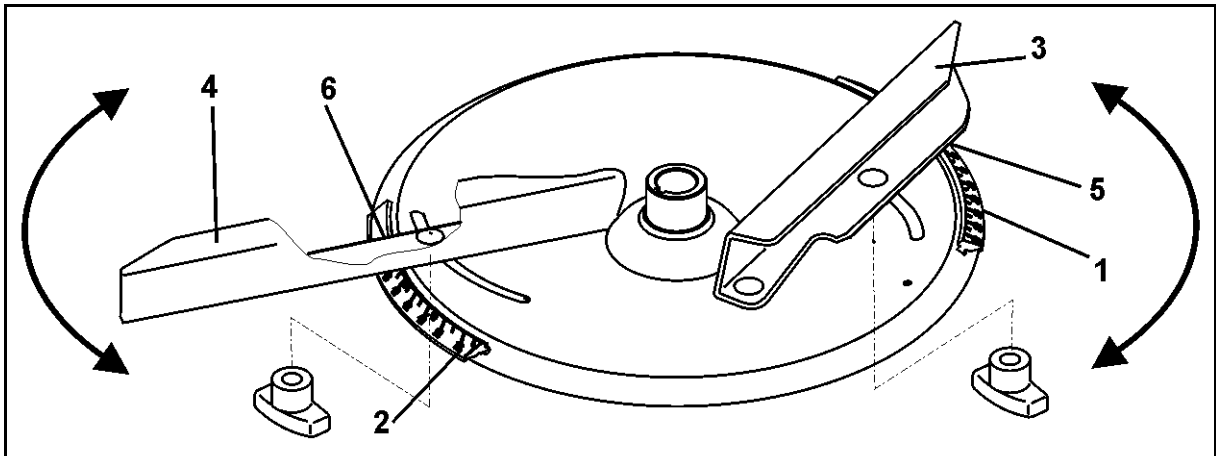


Fig. 56

The spreading vane position depends on:

- the working width and
- the type of fertiliser.

Two different scales, designed so as to make it impossible to confuse them, are arranged on each spreader disc for precision setting of the individual spreading vane positions (Fig. 56/1 and Fig. 56/2).



- The shorter spreading vanes (Fig. 56/3) are assigned the scale (Fig. 56/1) with values from 5 to 28; the longer spreading vanes (Fig. 56/4) are assigned the scale (Fig. 56/2) with the values from 35 to 55.
 - For the short spreading vane (Fig. 56/3), read off the set value on the read-off edge (Fig. 56/5).
 - For the long spreading vane (Fig. 56/4), read off the set value on the read-off edge (Fig. 56/6).
- Swivelling the spreading vanes to a higher scale value (Fig. 56/1 or Fig. 56/2) increases the working width.
- The shorter spreading vanes primarily distribute the fertiliser in the centre of the spread pattern, while the longer vanes primarily distribute it to the outer area.



Use the setting chart for adjusting the spreading vanes.

Adjust the spreading vanes as follows:

1. Turn off the spreader disc drive.
2. Secure the tractor against unintentional starting and rolling away, see the chapter "Securing the tractor against unintentional starting and rolling away", from page 74.
3. Wait until rotating spreader discs come to a complete standstill before adjusting the working width.


4. Set the desired working width by swivelling the short and long spreading vanes in one after the other.
 - 4.1 Turn the spreader disc so that the respective wing nut under the spreader disc can be released without problem.
 - 4.2 Release the respective wing nut.
 - 4.3 Refer to the setting chart for the short and long spreading vanes.
 - 4.4 Swivel the respective spreading vane so that you can read off the required setting on the scale on the read-off edge.
 - 4.5 Firmly retighten the respective wing nut by hand (without a tool).

Example:

Type of fertiliser: KAS 27%N granuled BASF (white)
 Spreader disc: OM 24 – 36
 Required working width: **27m**

- Take the fertiliser or trade name from the setting chart.
- Read off the fertiliser group.
- Take the spreading vane position from the table:
 - o **Group 1; working width 27m**
 - o **short vane 12,**
 - o **long vane 44**

Fertiliser	Trade name/designation	Fertiliser group
CAN	KAS 27% N gran. Fertiva Gmbh	1
	KAS 27% N gran. Linzer NAC	2
	KAS 27% N gran. Hydro Rostock	1
	KAS 27% N gran. Hydro Sliskll (NL)	1

Fertiliser group						
	24	27	28	30	32	36
1	10/44	12/44	13/44	15/44	15/44	10/44
2	15/43	17/44	17/44	17/45	17/46	15/43

8.3.3 Checking the working width with the mobile test rig (optional)

The working width is determined in part by the specific spreading properties of the fertiliser.

As is well known, the primary factors that affect the spreading properties are:

- Granule size
- Bulk density
- Surface condition and
- Humidity

The setting values of the setting chart are, therefore, to be considered **guide values** only, as the spreading properties of the different types of fertiliser may change. We recommend checking the working width of the machine using the **mobile fertiliser test rig** (Fig. 57).



See the operating manual for the mobile test rig.

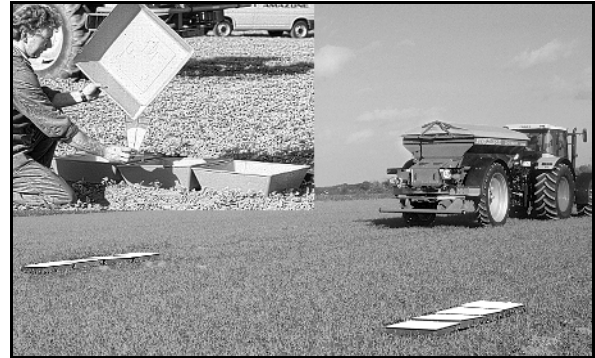


Fig. 57

8.3.4 Late top dressing

The OM spreader discs are fitted as standard with spreading vanes, with which, beside the normal fertilising (Fig. 58), also the late top dressing of grain can be carried out without additional accessories.

For late top dressing, pivot the swivel blades of the spreading vanes up into the top position without unscrewing the nuts (no tools required) (Fig. 59). This elevates the flight path of the fertiliser.

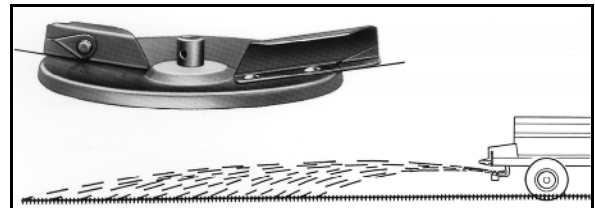


Fig. 58

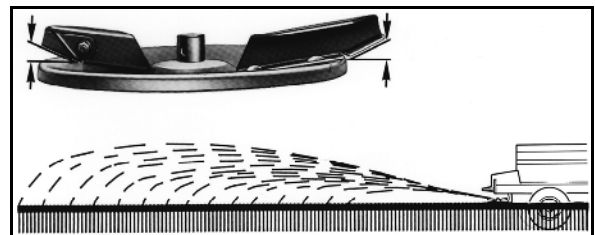


Fig. 59

8.4 Boundary spreading, ditch spreading and side spreading

1. Boundary spreading in accordance with fertiliser ordinance (Fig. 60):

Along the field border there is a road, a field path or another person's lot.

Fertiliser is not permitted to fall beyond the boundaries in accordance with the fertiliser ordinance.

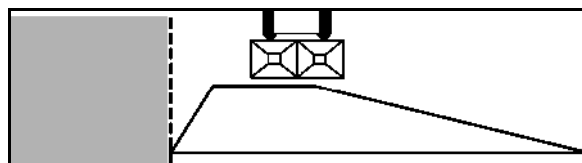


Fig. 60

2. Ditch spreading in accordance with fertiliser ordinance (Fig. 61):

There is body of water or a ditch along the field border.

The fertiliser ordinance specifies the following:

- No fertiliser must be spread within one metre of the border (with use of boundary spreading devices).
- No fertiliser must be spread within three metres of the border (without use of boundary spreading devices).
- Erosion and wash-away (e.g. in surface waters) must be prevented.

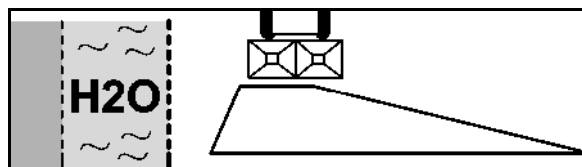


Fig. 61



Boundary and ditch spreading:

To prevent over-fertilising in the inside of the field, the spread rate at the boundary must be reduced. There is a slight under-fertilising in front of the field border.

The spread rate is automatically reduced (**Limiter** with position sensor required).

Beforehand, adjust the spread rate reduction on the on-board computer according to the setting chart.

3. Side spreading (Fig. 62):

The boundary is delineated by an area in agricultural use. It is acceptable for a small amount of fertiliser to be thrown across the field border.

The fertiliser distribution towards the edge of the field is still close to the nominal quantity. A small amount of fertiliser is thrown across the field border.

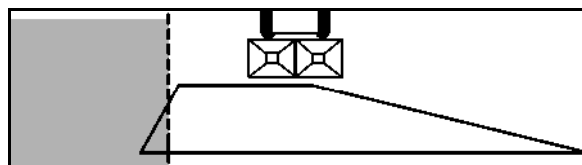


Fig. 62

8.4.1 Boundary, ditch and side spreading with border spread deflector **Limiter** (optional)


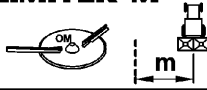









The setting of the **Limiter** depends on

- Boundary distance
- Type of fertiliser
- Nature of the field border

Read the value to be set from the **Limiter** setting chart.








- The values of the setting chart are to be understood as guide values, as the fertiliser conditions may vary. Readjust the **Limiter** if necessary.
- The side distance in the setting chart always indicates half the working width.

 LIMITER M 		OM 10-12/OM 10-16				OM 18- 24				OM 24- 36					
		5	6	7,5	8	9	10	10,5	12	12	13,5	14	15	16	18
KAS CAN AN NPK DAP MAP		12	10	8	7	8	6	4	2	2	1	0	0	0	0
		15	13	12	10	13	12	11	10	11	10	9	8	7	5
		15	13	15	14	15	14	14	12	12	12	12	11	10	8
Harnstoff Urea Urée Мочевина		5	7	4	4	4	3	3	2	2	1	0	-	-	-
		13	11	9	8	8	7	6	6	6	6	5	-	-	-
		15	13	11	10	11	10	9	8	8	8	7	7	6	-
P K PK MgO		9	7	4	3	3	3	3	0	0	0	0	0	0	0
		12	11	9	8	7	5	4	3	3	2	1	0	0	0
		15	14	12	11	10	8	7	6	6	5	5	4	4	3
AMAZONE		A							B						

ME761

Fig. 63

	Side distance (half working width) corresponding to the mounted OM spreader discs
	Boundary spreading
	Side spreading
	Ditch spreading
	Necessary reduction of universal joint shaft speed

Adjustments

Fig. 64/...

- (1) Border spread deflector and scale with values from 0 to 15.
 - (2) Scale display
 - (3) Clamping lever
 - (4) Guide bracket
 - (5) Position sensor
- Adjustable throttle on hydraulic control block

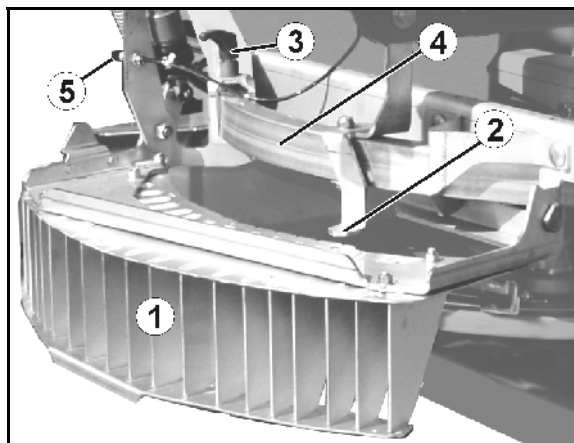


Fig. 64



The Limiter is operated via the **AMATRON⁺**.

- For boundary/side spreading, lower the border spread deflector hydraulically.
- After boundary spreading, hydraulically swivel up the border spread deflector and continue with normal spreading.

Adjustment

To set the values, position the border spread deflector on the guide bracket.

1. To do so, release the clamping lever.
If the turn range of the clamping lever is insufficient, raise the handle, press it back and lower again.
2. Move the border spread deflector on the guide bracket until the indicator is at the value to be set from the setting chart.
3. Resecure the clamping lever.

The border spread deflector can be fitted in position A or position B for setting different scale ranges.

Fig. 65/...

Pos. A: - for scale range 3 – 14

Pos. B: - for scale range 0 - 11

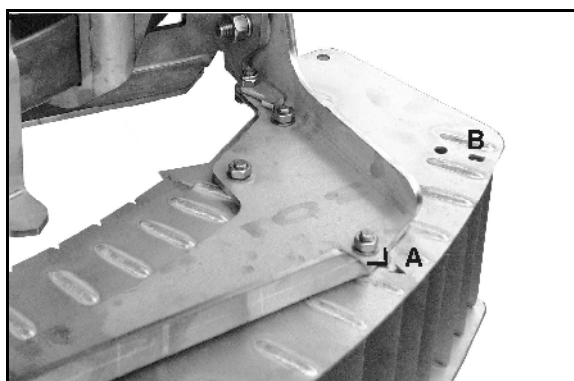


Fig. 65

Late top dressing with **Limiter**

For late top dressing the border spread deflector is placed in a half-way position (Fig. 66).

- For this purpose, hydraulically lower the border spread deflector.

At the top of the border spread deflector, there is an adjusting bar on the left and right (Fig. 67/1).

1. Release the nuts on the adjusting bar.
2. Raise the deflector by hand.
3. Shift the adjusting bar to the stop and tighten the bar firmly.
4. Lower the deflector.

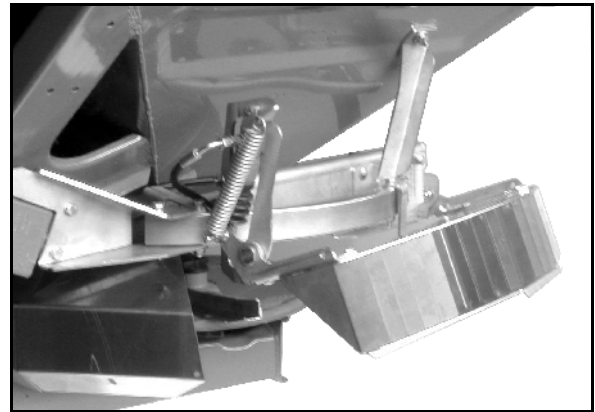


Fig. 66

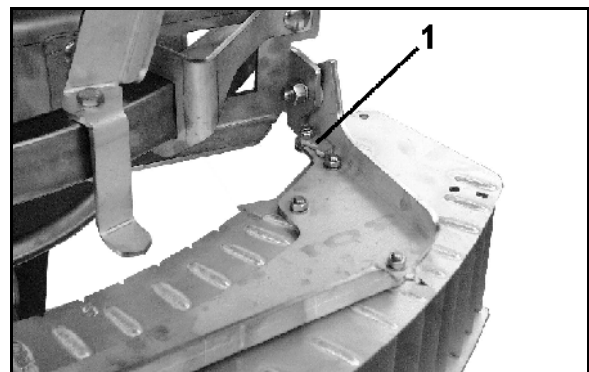


Fig. 67

9 Transportation



- Comply with the chapter "Safety information for the operator", from page 25 when moving.
- Before moving off, check:
 - The correct connection of the supply lines
 - The lighting system for damage, function and cleanliness
 - The brake and hydraulic system for visible damage
 - That the parking brake is released completely.
 - The function of the brake system.



WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact when making interventions in the machine, through unintentional machine movements.

- Secure the machine against unintentional movements before starting transportation.



WARNING

Risk of contusions, cuts, dragging, catching or knocks from tipping and insufficient stability.

- Drive in such a way that you always have full control over the tractor with the attached machine.
In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the tractor and the connected machine.



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

These risks pose serious injuries or death.

Comply with the maximum load of the connected machine and the approved axle and drawbar loads of the tractor. If necessary, drive only with a partially filled hopper.



WARNING

Risk of falling from the machine if riding against regulations!

It is forbidden to ride on the machine and/or climb the running machine.

Instruct people to leave the loading site before approaching the machine.

**CAUTION**

- Comply with the chapter "Safety information for the operator", from page 25 when moving.
- Transportation is prohibited with a locked tractor control unit. As a general rule, put the tractor control unit on the tractor into neutral for transportation.
- Use transport locking for locking the raised ladder to prevent it from folding down again accidentally.



The transport width of 2.55 m must not be exceeded!



Place the machine in the transport position

- Place the ladder in the transport position.
- Close the shutter.
- Close the swivelable hopper cover.
- Place the Trail-Tron drawbar in the transport position, see page 51.
- Keep the **AMATRON⁺** switched off for road travel.

10 Use of the machine



When using the machine, observe the information in the following sections:

- "Warning symbols and other labels on the machine" from page 16 and
- "Safety information for the operator", on page 23 ff.

Observing this information is important for your safety.



See the **AMATRON⁺** operating instructions!



WARNING

Danger from ejected objects (fertiliser particles, foreign bodies, e.g. small stones) in the direction of the tractor without the intended protective equipment (deflector plates)!

Only ever start up the machine when the protective equipment (deflector plates) is fully installed.



WARNING

Danger from catching, entanglement, pulling in or entrapment during machine operation due to accessible powered elements of the machine.

- Only start up the machine, when all the safety equipment has been attached and is in the closed position.
- It is forbidden to open the safety equipment
 - when the machine is running.
 - for as long as the tractor engine is running with a connected PTO shaft/hydraulic system.
 - when the ignition key is inserted in the tractor and the tractor engine with the connected PTO shaft / hydraulic system could be started unintentionally.



WARNING

Danger from ejected, damaged components caused by impermissibly high drive speeds of the tractor universal joint shaft!

Observe the approved machine drive speed before switching on the tractor universal joint shaft.

**WARNING**

Danger from being entangled and drawn in and danger from foreign objects being caught and thrown in the danger area of the driven PTO shaft!

- Whenever the machine is used, first check to ensure that the safety devices and guards of the PTO shaft are fully intact and functional.
Have damaged safety devices and guards of the PTO shaft replaced immediately by a specialist workshop.
- Check that the PTO shaft guard is secured against rotation by the supporting chain.
- Maintain a sufficient safety clearance between you and the driven PTO shaft.
- Direct people out of the danger area of the driven PTO shaft.
- Shut down the tractor engine immediately in case of danger.

**WARNING**

Danger of catching or entanglement and drawing in or entrapment of loose clothing by moving elements (rotating spreader discs)!

Do not wear loose-fitting clothing. Tight clothing reduces the risk of unintentional catching or entanglement and drawing in or entrapment by moving elements.

**WARNING**

Risk of contusions, cutting, catching, drawing in and knocks through insufficient stability and tipping of the tractor and/or the connected machine.

Drive in such a way that you always have full control over the tractor with the attached machine.

In so doing, take your personal abilities into account, as well as the road, traffic, visibility and weather conditions, the driving characteristics of the driver and the connected machine.

**DANGER**

Risk of the machine tipping over when the steering drawbar is pushed in, particularly on very uneven or sloping terrain.

With a loaded or partially loaded machine with tracking steering drawbar, there is a risk of tipping over when performing a turning manoeuvre on a headland at high speeds, due to the shifting of the centre of gravity when the steering drawbar is pushed in. The risk of tipping over is especially great when travelling downhill on sloping terrain.

Adapt your driving accordingly and reduce speed when performing a turning manoeuvre on a headland, so that you are in complete control of the tractor and machine.

**WARNING**

Risk of contusions, cutting, catching, drawing in and knocks through

- **Unintentional start-up and rolling of the tractor-machine combination.**

Secure the tractor and the machine against unintentional start-up and rolling, before eliminating faults on the machine. See page 74.

Wait for the machine to stop before entering the machine danger area.



- For new machines, after 3-4 full hopper loads, check that the screws are tight and retighten if necessary.
- Use only fertiliser with the proper grain size, of the kinds listed in the setting chart. If the type of fertiliser is not known exactly, check the working width using the mobile fertiliser test rig.
- The technical condition of the spreading vanes is essential for uniform lateral distribution of the fertiliser on the field (i.e. forming strips).
- After every use, remove any fertiliser clinging to the spreading vanes.

10.1 Filling the machine



WARNING

Danger of breaking during operation, insufficient stability and insufficient tractor steering and braking power on improper use of the tractor!

Comply with the maximum load of the connected machine and the approved axle and drawbar loads of the tractor. If necessary, drive only with a partially filled hopper.



WARNING

Couple the bulk fertiliser spreader to the tractor before loading.



- Remove residues or foreign bodies from the hopper before filling with fertiliser.
- Make sure that the charging sieve is always closed before you fill the hopper. Only a closed charging sieve prevents clumps of fertiliser and/or foreign bodies getting into the hopper and blocking the agitator.
- Let the floor belt run for a short period to reduce friction.
- It is essential to observe the safety instructions from the fertiliser manufacturer. Use appropriate protective clothing as necessary.

10.2 Spreading operation



WARNING

The **ZG-B** is not suitable for spreading slug pellets.



WARNING

Danger of ejection of parts of the spreading vanes / swivel blades, caused by worn spreading vanes / swivel blades!

Every day, at the start and end of spreading work, check all spreading vanes and swivel blades for visible damage/defects. Refer to the criteria for the replacement of wearing parts in the section "Replacing spreading vanes and swivel blades", page 116.



- The spreading vanes and swivel blades are made of especially hard-wearing stainless steel. However, the spreading vanes and swivel blades are wearing parts.
- The type of fertiliser, times of use and spread rates influence the service life of spreading vanes and swivel blades.
- Several spreading materials such as kieserite, Excello granules and magnesium sulphate may cause higher levels of wear on the spreading vanes. We supply spreading vanes with higher resistance to wear for these spreading materials (optional).
- The technical condition of the spreading vanes and swivel blades is essential for uniform lateral distribution of the fertiliser on the field (i.e. forming strips).



WARNING

Danger from materials or foreign objects that are thrown from or ejected by the machine at high speeds.

- Make sure that uninvolved persons are kept well clear of the danger area of the machine in the following situations:
 - Before you switch on the power for the spreader discs.
 - While the tractor engine is running.
- When spreading fertiliser at field edges in residential areas / along roads, take care not to endanger persons or damage objects. Maintain a sufficient safety distance and use the appropriate devices for boundary spreading and/or reduce the drive speed of the spreader discs.



WARNING

Danger of being entangled and drawn in event of contact with the driven agitator when climbing onto the machine!

- Never climb on the machine when the tractor engine is running.
- Secure the tractor and the machine against unintentional start-up and rolling before climbing onto the machine.

The fertiliser spreader is operated using the **AMATRON⁺**.

- The fertiliser spreader is coupled to the tractor.
- The supply lines are connected.
- The PTO shaft is engaged.
- The settings have been configured.



- To use the steering drawbar, set the stop tap on the hydraulic cylinder to Position II!
- Never open the two shutters until the required universal joint shaft speed has been reached.
- Carry out a spread rate check!
- Activate tractor control unit 1 and switch **on** the hydraulic fluid supply to the control block!
- Switch all hydraulic functions via the **AMATRON⁺**.
- After long transport with a full hopper, ensure that the yield is correct before spreading begins.



- Make sure the universal joint shaft speed is appropriate for the spreader unit.
 - 720 rpm (Fig. 68)
 - 540 rpm (Fig. 69)
- Set universal joint shaft speed to 540 rpm/720 rpm, unless otherwise specified in the setting chart.

720¹/min

132 730 600 100

Fig. 68

540¹/min

922059

Fig. 69

1. Couple the universal joint shaft at a low tractor engine speed.
2. Open the shutters hydraulically and drive to the spreading area.
3. For boundary spreading: lower the **Limiter** hydraulically.
4. When you have finished spreading:
 - 4.1 Close the shutters.
 - 4.2 Uncouple the universal joint shaft at a low tractor engine speed.
 - 4.3 Activate tractor control unit 1 and switch **off** the hydraulic fluid supply for the control block!



- If, despite an identical shutter position, you determine that the two hopper tips are not emptying uniformly, check the basic setting of the shutters.

10.3 Recommendation for working in headlands

Prerequisite for accurate work at field borders and edges. The first tramline (Fig. 70/T1) is generally placed at half the distance between the tramline to the edge of the field. A tramline of this type is laid in the same fashion in the headlands.

First drive around the field in the first tramline with the border spreading device activated.

On account of spreading towards the rear, for accurate distribution on headlands the following must be noted:

Open and close the shutters for forward (tramlines T1, T2, etc.) and return trips (tramlines T3, etc.) at different distances to the field edge.

- Open the shutter after entering the tramline at point P1 (Fig. 71), when the spreader discs are at distance X from the tramline of the headland.
 - $X = 1$ working width with working widths $> 18\text{m}$.
 - $X = 1.5$ working widths with working widths $< 18\text{m}$.
- Close the shutter before leaving the tramline at point P2 (Fig. 71), when the spreader discs are located at the level of the first tramline of the headland.



Using the method just described prevents fertiliser loss and over or under-fertilising and thus is an environmentally friendly way of working.

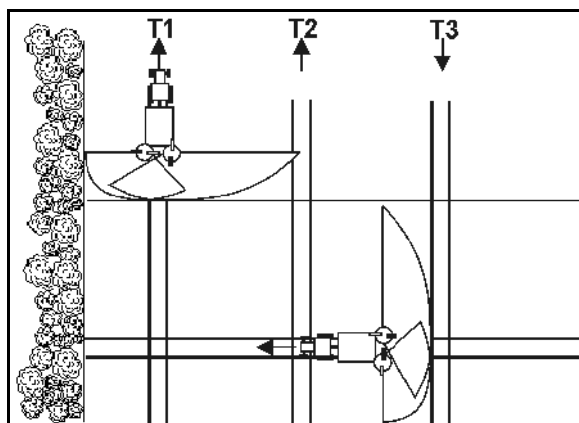


Fig. 70

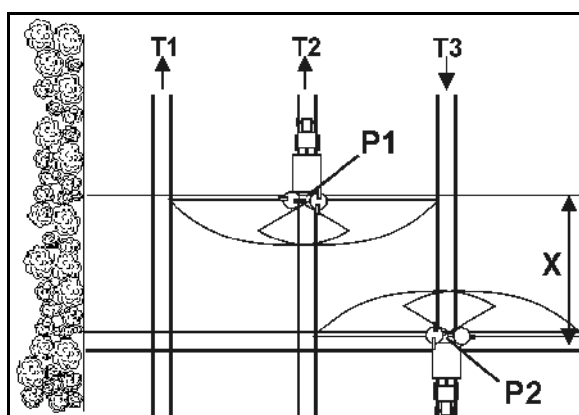


Fig. 71

11 Faults



WARNING

Danger of crushing, shearing, cutting, being drawn in and/or caught if the tractor/machine combination is started and/or rolls unintentionally.

Secure the tractor and the machine against unintentional start-up and rolling, before eliminating faults on the machine. See page 74.

Wait for the machine to stop before entering the machine danger area.

Fault	Cause	Remedy
Fertiliser lateral distribution not uniform.	Fertiliser deposits on the spreader discs and the spreading vanes.	Clean the spreader discs and the spreading vanes.
	The spreading properties of your fertiliser differ from those of the one we tested when creating the setting chart.	Contact the AMAZONE Fertiliser Service. ☎ 05405-501 111
Too much fertiliser in the tractor track	Prescribed spreader disc speed is not reached.	Increase tractor engine speed.
	Spreading vanes and outlets defective or worn.	Check the spreading vanes and outlets. Replaced defective or worn parts immediately.
	The spreading properties of your fertiliser differ from those of the one we tested when creating the setting chart.	Contact the AMAZONE Fertiliser Service. ☎ 05405-501 111
Too much fertiliser in the overlap area	Prescribed spreader disc speed is exceeded.	Reduce tractor engine speed.
Floor belt does not convey fertiliser	Oil pressure too low.	Increase the oil pressure from the tractor.
Floor belt runs unevenly	Fertiliser clogging the shafts of the floor belt.	Remove fertiliser clogging. Adjust scrapers.
	Bearing defective	Replace bearing.
Collision of PTO shaft and flange of towing eye	Unfavourable tractor geometry.	Install drive unit in different position, order no.: 935060.
Swivelable hopper cover does not open/opens too fast	Throttle not adjusted correctly.	Adjust throttle.
No hydraulic functions	Fluid supply at the tractor is not switched on.	Switch on fluid supply at the tractor.
	Power supply to valve block interrupted.	Check cable, plug and contacts.
	Oil filter contaminated.	Replace/clean oil filter. (on page 136).
	Solenoid valve dirty	Rinse solenoid valve (en page 136).

Faults

Fault	Cause	Remedy
The temperature of the hydraulic fluid is too high in a tractor equipped with a constant flow system (gear pump)	The system converting bolt on the spreader valve block has not been unscrewed to the limit stop (factory setting).	Unscrew the system converting bolt on the spreader valve block until it reaches the limit stop (on page 77).
	Defective plug couplings	Check plug couplings, repair/replace as required.
	Defective tractor control unit	Check tractor control unit, repair/replace as required.
The temperature of the hydraulic fluid is too high in a tractor equipped with a constant pressure system (some older John Deere tractors)	The system converting bolt on the spreader valve block has not been screwed in to the limit stop (opposite of factory setting).	Screw the system converting bolt on the spreader valve block until it reaches the limit stop (on page 77).
	Defective plug couplings	Check plug couplings, repair/replace as required.
	Defective tractor control unit	Check tractor control unit, repair/replace as required.
The temperature of the hydraulic fluid is too high for a tractor with load-sensing system and oil removal via the tractor control unit	The system converting bolt on the spreader valve block has not been unscrewed to the limit stop (factory setting).	Unscrew the system converting bolt on the spreader valve block until it reaches the limit stop (on page 77).
	The quantity of oil at the tractor control unit has not sufficiently reduced.	Reduce the quantity of oil at the tractor control unit.
	Defective plug couplings	Check plug couplings, repair/replace as required.
	Defective tractor control unit	Check tractor control unit, repair/replace as required.
The temperature of the hydraulic fluid is too high for a tractor with load-sensing system, direct oil removal and control line	The system converting bolt on the spreader valve block has not been screwed in to the limit stop (opposite of factory setting).	Screw the system converting bolt on the spreader valve block until it reaches the limit stop (on page 77).
	Defective plug couplings	Check plug couplings, repair/replace as required.
AMATRON⁺ shows no function	Power supply defective.	Check power supply to AMATRON⁺

12 Cleaning, maintenance and repairs



WARNING

Risk of contusions, cutting, catching, drawing in and knocks through

- **Unintentional falling of raised, unsecured machine parts.**
- **Unintentional start-up and rolling of the tractor-machine combination.**

Secure the tractor and machine against unintentional start-up and rolling, before carrying out cleaning, maintenance or repair work on the machine when coupling or decoupling the machine. See also page 74.



WARNING

Risk of crushing, shearing, cutting, being caught and/or drawn in, or impact through unprotected danger points

- Mount protective equipment, which you removed when cleaning, maintaining and repairing the machine.
- Replace defective protective equipment with new equipment.



DANGER

- **When carrying out maintenance and repair, observe the safety instructions (see page 31).**
- **You may only carry out maintenance or repair work under moving machine parts that are in a raised position if such parts are secured with suitable, positive-fit locking devices against accidental lowering.**



- Regular and proper maintenance will keep the machine in good condition for a long time, and will prevent early signs of wear. Regular and proper maintenance is a requirement of our warranty conditions.
- Use only genuine **AMAZONE** spare parts (see "Spare and wear parts and auxiliary materials" section, page 15).
- Only use genuine **AMAZONE** replacement hoses, and hose clamps made of V2A for assembly.
- Testing and maintenance operations require specialist knowledge. This is not provided in this operating manual.
- Observe environmental protection measures when carrying out cleaning and maintenance work.



- Observe legal requirements when disposing of lubricants, e.g. oils and grease. These legal requirements also affect parts that come into contact with these lubricants.
- Do not exceed a greasing pressure of 400 bar when greasing with high pressure grease guns.
- The following are prohibited:
 - drilling the running gear.
 - drilling through existing holes on the transport frame.
 - welding load-bearing components.
- Protective measures are necessary, such as covering lines or extending lines in particularly critical locations
 - during welding, drilling and grinding work.
 - when working with cut-off wheels near plastic wires and electric wires.
- Clean the machine thoroughly with water before carrying out repair work.
- Carry out repair work on the machine with the pump switched off.
- Thorough cleaning must be carried out before repair work can be carried out inside the spray liquid tank. Keep out of the spray liquid tank.
- Disconnect the machine cable and power supply from the on-board computer when carrying out any cleaning or maintenance work. This applies especially to welding on the machine.

12.1 Cleaning



- Monitor brake, air and hydraulic hose lines particularly carefully.
- Never treat brake, air and hydraulic hose lines with benzene, benzole, petroleum or mineral oils.
- After cleaning, grease the machine, in particular after cleaning with a pressure washer / steam jet or liposoluble agents.
- Observe the statutory requirement for the handling and removal of cleaning agents.

Cleaning with a pressure washer / steam jet



- Always observe the following points when using a pressure washer / steam jet for cleaning:
 - Do not clean any electrical components.
 - Do not clean any chromed components.
 - Never aim the cleaning jet from the nozzle of the pressure washer / steam jet directly on lubrication and bearing points.
 - Always maintain a minimum jet distance of 300 mm between the high pressure cleaning or steam jet cleaning nozzle and the machine.
 - Comply with safety regulations when working with pressure washers.

- Clean machine with regular water jet (oiled implements only at washbays with oil separators).
- Give particular attention to cleaning outlet openings and shutters.
- Remove fertiliser deposits from the spreader discs and the spreading vanes.
- When the machine is dry, apply a coat of anti-rust compound. (Use only biodegradable compounds).
- Park the machine with the shutters **opened**.

12.2 Lubrication specifications



Lubricate all the lubricating nipples (keep the seals clean).

Lubricate / grease the machine at the specified intervals (operating hours h).

The lubrication points on the machine are indicated with the film (Fig. 72).

Carefully clean the lubrication points and grease gun before greasing, so that no dirt enters the bearing. Completely press out the soiled grease in the bearings and replace it with new grease.

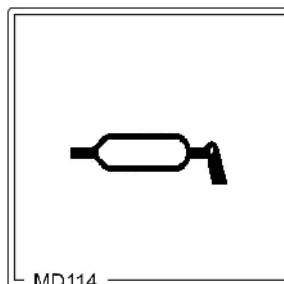


Fig. 72

Lubricants



For lubrication, use a lithium saponified, multipurpose grease with EP additives:

Company	Lubricant designation	
	Normal use conditions	Extreme use conditions
ARAL	Aralub HL 2	Aralub HLP 2
FINA	Marson L2	Marson EPL-2
ESSO	Beacon 2	Beacon EP 2
SHELL	Ratinax A	Tetinax AM

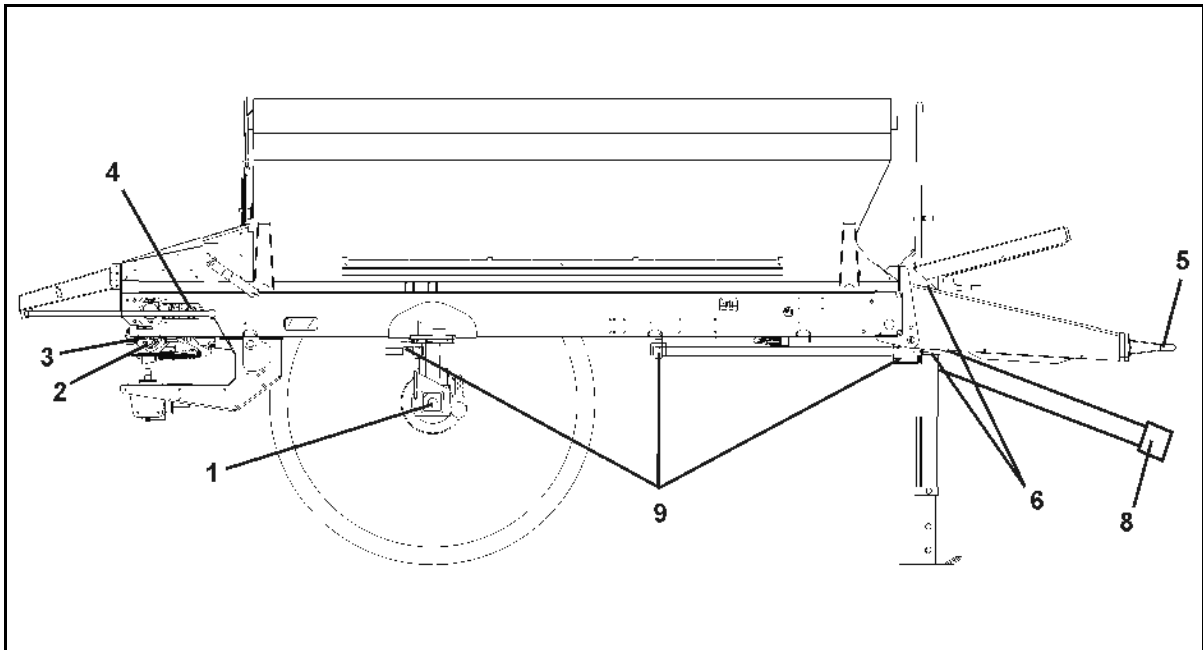


Fig. 73

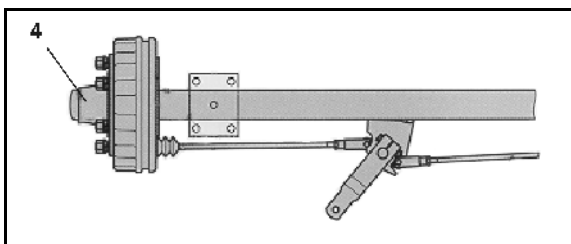


Fig. 74

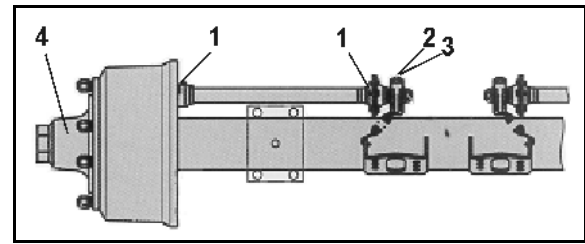


Fig. 75

	Lubrication points	Type of lubrication	Quantity	Interval [h]
1	Axle and brake	Grease nipple	4	See below
2	Agitator shaft flange bearing	Grease nipple	2	50
3	Agitator shaft drive chain	Oil	1	50
4	Flange bearing, floor belt	Grease nipple	2	100
5	Towing eye	Grease	1	8
6	Steering drawbar bearing	Grease nipple	2	50
7	Pedestal bearing, drive shaft	Grease nipple	3	100
8	PTO shaft	Grease nipple	4	See on page 112

	Lubrication points	Type of lubrication	Quantity	Interval [h]
Fig. 74	Axle with expanding lever brake		4	
Fig. 75	Axle with S-cam brake / wing cam brake		2	
1	Brake shaft bearing, outer and inner	Grease nipple		200
2	Linkage adjuster	Grease nipple		1,000
3	ECO-Master automatic linkage adjuster	Grease nipple		1,000
4	Renew wheel hub bearing grease, check taper roller bearings for wear	Grease nipple		1,000

Lubricating the PTO shaft

For winter operation, grease the protective tubes to prevent them from freezing.

Also observe the installation and service instructions from the PTO shaft manufacturer, which are fastened to the PTO shaft.

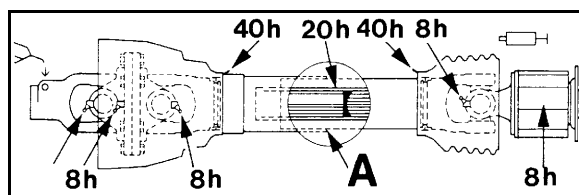


Fig. 76

Brake shaft bearing, outer and inner

Caution: no grease or oil should be allowed to get into the brakes. Depending on the model series, the cam bearing for the brakes may not be sealed.

Only use lithium saponified grease with a dropping point greater than 190 °C.

ECO-Master automatic linkage adjuster

Each time the brake pads are replaced:

1. Remove the rubber stopper cap.
2. Apply grease (80 g) until sufficient clean grease escapes at the adjusting screw.
3. Slacken the adjusting screw by approximately one turn with a ring spanner. Actuate the brake lever several times by hand. The automatic readjustment should function smoothly. Repeat several times, as necessary.
4. Refit the stopper cap. Grease again.

Renewing the wheel hub bearing grease

1. Jack up the vehicle securely and release the brakes.
2. Remove the wheels and dust caps.
3. Remove the lynch pin and unscrew the axle nut.
4. Use a suitable extraction device to remove the wheel hub and brake drum, taper roller bearing and sealing elements from the axle stub.
5. Label the removed wheel hubs and bearing cages so that you do not confuse them when refitting.
6. Clean the brakes, check for wear, sound condition and function and replace worn parts.

The interior of the brake must be kept free from lubricants and dirt.

7. Thoroughly clean the interior and exterior of the wheel hubs. Remove all traces of old grease. Thoroughly clean the bearings and seals (diesel oil) and check for reusability.

Before refitting the bearings, lightly grease the bearing carrier and then refit all parts in the reverse order. Carefully fit parts with press fits and pipe bushings so that they are not twisted or damaged.

The bearings, the wheel hub cavity between the bearings and the dust cap must be smeared with grease before fitting. The grease should fill approximately a quarter to a third of the space in the fitted hub.

8. Fit the axle nut and adjust the bearing and brake. Finally, carry out a function check and an appropriate test run and rectify any detected faults.



The wheel hub bearing must only be greased with BPW special longlife grease with a dropping point greater than 190 °C.

The wrong grease or too great a quantity can result in damage.

Mixing lithium-saponified grease with sodium-saponified grease can result in damage caused by incompatibility.

12.3 Maintenance schedule – overview



- Carry out maintenance work when the first interval is reached.
- The times, continuous services or maintenance intervals of any third party documentation shall have priority.

After the first working run

Component	Maintenance work	see page	Workshop work
Wheels	<ul style="list-style-type: none"> • Check the wheel nuts for firm seating. 	130	
Hydraulic system	<ul style="list-style-type: none"> • Check for leak-tightness 	132	X

Daily

Component	Maintenance work	see page	Workshop work
Air reservoir for the air-pressure brake	<ul style="list-style-type: none"> • Drain the air reservoir 	127	
Control butterfly valve	<ul style="list-style-type: none"> • Check for ease of movement and adjust if necessary 	120	
Outlet openings	<ul style="list-style-type: none"> • Clean 		
Agitator	<ul style="list-style-type: none"> • Visual check Replace broken safety splints in the shear-off safety device if necessary 		
Spreading vanes Swivel blade	<ul style="list-style-type: none"> • Condition check, replace if necessary 	116	
Oil filter	<ul style="list-style-type: none"> • Check contamination indicator, replace oil filter as necessary 	136	
Hydraulic hose lines	<ul style="list-style-type: none"> • Inspection for defects 	132	
Electric traffic lighting system	<ul style="list-style-type: none"> • Replace defective bulbs 	137	

Monthly / every 50 operating hours

Component	Maintenance work	see page	Workshop work
Hydraulic system	<ul style="list-style-type: none"> Check for leak tightness 	132	X
Parking brake	<ul style="list-style-type: none"> Check the braking effect with the brake on 	129	

Every three months / 200 operating hours

Component	Maintenance work	see page	Workshop work
Dual-circuit service brake system	<ul style="list-style-type: none"> Check for leak tightness Check pressure in the air reservoir Check brake cylinder pressure Visual inspection of brake cylinder Joints on brake valves, brake cylinders and brake linkages 	127	X
	<ul style="list-style-type: none"> Linkage adjuster brake settings 	125	X
	<ul style="list-style-type: none"> Check the function of the automatic linkage adjuster 	126	X
	<ul style="list-style-type: none"> Brake pad check 	125	X
Expanding lever brake	<ul style="list-style-type: none"> Brake settings 	126	X
Line filter	<ul style="list-style-type: none"> Clean Replace damaged filter inserts 	127	
	<ul style="list-style-type: none"> Check the wheel nuts for firm seating. 	130	
	<ul style="list-style-type: none"> Check play on wheel hub bearings 	124	X

Annually / 1,000 operating hours

Component	Maintenance work	see page	Workshop work
Brake drum	<ul style="list-style-type: none"> Check for dirt 	124	X

As necessary

Component	Maintenance work	see page	Workshop work
Solenoid valves	<ul style="list-style-type: none"> Clean 	136	X
Belt conveyor	<ul style="list-style-type: none"> Tension belt conveyor if it is running unevenly 	119	
Drawbar	<ul style="list-style-type: none"> Replace if damaged 	122	X

12.4 Replacing the spreading vanes and swivel blades



- The technical condition of the spreading vanes, including their swivel blades, is essential for uniform lateral distribution of the fertiliser on the field (i.e. forming strips).
- The spreading vanes are made of especially wear-resistant stainless steel. Nevertheless, we remind you that the spreading vanes and their swivel blades are wear parts.



Replace the spreading vanes and / or swivel blades as soon as holes from abrasion are visible.

12.4.1 Replacing the spreading vanes



WARNING

Danger of ejection of spreading vanes caused by the unintentional release of fixing bolts and quick-release screw connections!

- When replacing the spreading vanes, it is essential to replace used self-locking nuts of the fixing bolts with new ones. A used self-locking nut no longer has the required clamping force to produce a secure screw connection.
- Ensure that the open side of the disc spring is toward the spreader disc before tightening the wing nut. Only in this position can the disc spring pretension and secure the quick-release screw connection.



It is essential to ensure that the spreading vanes are installed correctly! The open side of the U-shaped spreading vane must be facing the direction of rotation (Fig. 77/5).

1. Release and remove the fixing bolt (Fig. 77/3).
2. Release and remove the quick-release screw connection (Fig. 77/4).
3. Replace the spreading vane.
4. Replace the used self-locking nuts (Fig. 77/1) of the fixing bolts with new ones.
5. Secure each spreading vane with a fixing bolt, washer and an unused self-locking nut (Fig. 77/1) so that they can move on the spreader disc.
6. Tighten the self-locking nut (Fig. 77/1) with a tool to the extent that you can still just swivel the spreading vane by hand.
7. Fit the quick-release screw connections (Fig. 77/4), consisting in each case of a round-head screw, disc spring and wing nut. Make absolutely sure that the open side of the disc spring faces the spreader disc.
8. Swivel the read-off edge of each spreading vane until it reaches the setting required for the desired working width. Also refer to the chapter "Adjusting the working width", page 89.
9. Firmly tighten the respective wing nut of the quick-release screw connection (Fig. 77/4) by hand (without using a tool).

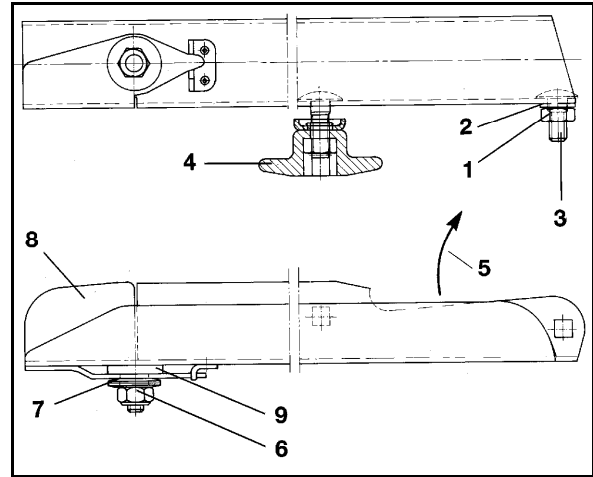


Fig. 77

12.4.2 Replacing the swivel blades



WARNING

Danger of ejection of swivel blades of spreading vanes caused by the unintentional release of screw connections!

When replacing the swivel blades, it is essential to replace used self-locking nuts of the screw connections with new ones. A used self-locking nut no longer has the required clamping force to produce a secure screw connection.

1. Release the self-locking nut (Fig. 78/6).
2. Remove the self-locking nut (Fig. 78/6), disc springs (Fig. 78/7) and swivel blade (Fig. 78/8) from the fixing bolt.
3. Make sure that the plastic washer (Fig. 78/9) remains on the fixing bolt.
4. Mount the new swivel blade.
 - 4.1 Push the new swivel blade (Fig. 78/8) on to the fixing bolt.
 - 4.2 Push the disc springs (Fig. 78/7) alternately (not stacked on top of one another) on to the fixing bolt.
 - 4.3 Secure the plastic washer (Fig. 78/9), swivel blade (Fig. 78/8) and disc springs (Fig. 78/7) with an unused self-locking nut (Fig. 78/6) so that they move on the spreading vane.
 - 4.4 Tighten the self-locking nut (Fig. 78/6) with a tool so that the swivel blade (Fig. 78/8) can still just be swivelled by hand but cannot swing upwards automatically.

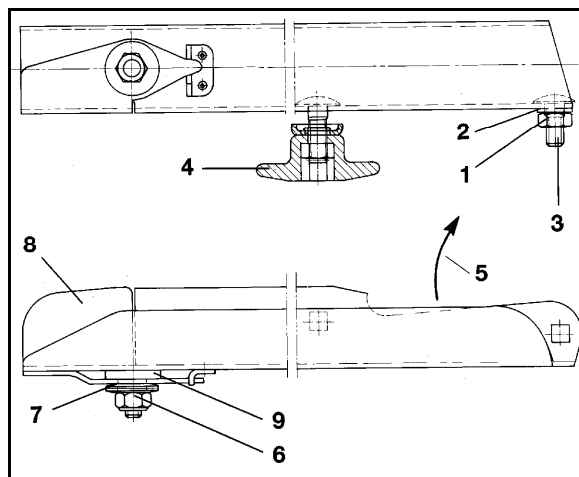


Fig. 78

12.5 Belt conveyor with automatic belt control

One property of belt conveyors (Fig. 79/1) is that they give way under load on inclines such as on sloping terrain or if they are loaded on one side only. The belt conveyor then runs outwards. One-sided belt conveyor running is prevented by the automatic belt control in **AMAZONE** bulk fertiliser spreaders **ZG-B**.

The conveyor belt is tensioned in the floor belt with automatic belt control between the drive drum (Fig. 79/2) and the pulley (Fig. 79/3).

While the drive drum is secured rigidly in the floor belt, the pulley can turn around the swivel axle (Fig. 79/4). The belt conveyor is also guided between two control rollers (Fig. 79/5), which are connected to the pulley by a control frame (Fig. 79/6).

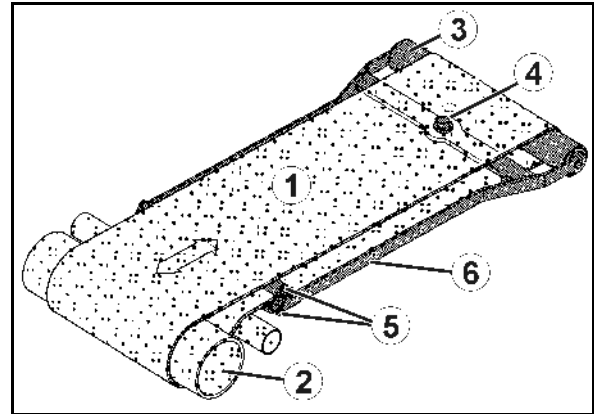


Fig. 79

If the belt conveyor runs outwards due to a one-sided load, the control rollers follow this movement. Consequently, this causes the pulley to turn around the swivel axle. As a result, the distance between the pulley and the drive drum increases on the side toward which the belt conveyor is moving.

The larger distance causes the belt conveyor to return to the middle and continue to settle down in the middle.

Tensioning the belt conveyor:

The belt conveyor is tensioned with pretension in the floor belt for stable, even belt movement. If the belt conveyor runs unevenly in any circumstance, the belt conveyor should be retensioned on both sides as described below:

1. Loosen the rear lock nuts on both sides when viewed in the direction of travel (see arrow) (Fig. 80/1) by turning them anti-clockwise.
2. Turn the nuts on both sides evenly to the left when viewed in the direction of travel (see arrow) (Fig. 80/2).
3. Tighten the lock nuts.



The adjustment travel of the nuts (Fig. 80/2) must be equal on both sides of the floor belt. Do not turn either nut (Fig. 80/2) more than a ½ spanner turn. Tighten the lock nuts and check whether the belt conveyor is driven evenly again.

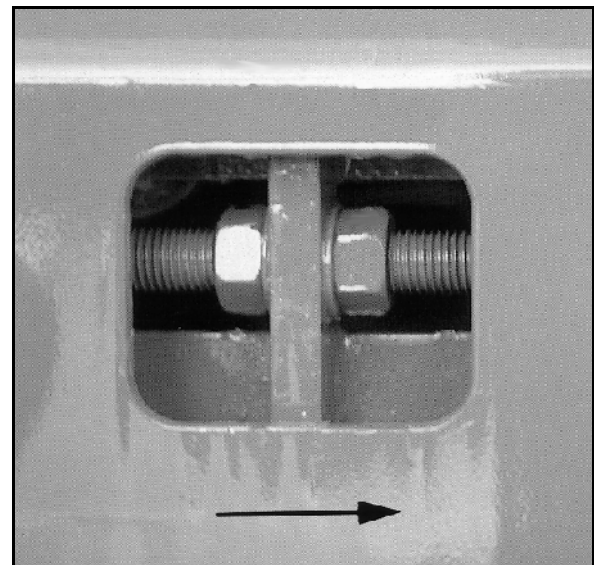


Fig. 80

12.6 Checking dosing unit

1. Release the screws (Fig. 81/1) on the rear flap (Fig. 81/2).
2. Remove the rear flap.
3. Check the control butterfly valve (Fig. 82/1) for ease of movement and readjust adjustment rings.
4. Clean the outlet openings.
5. Check the agitator for damage.
6. Refit the rear flap.



Fig. 81

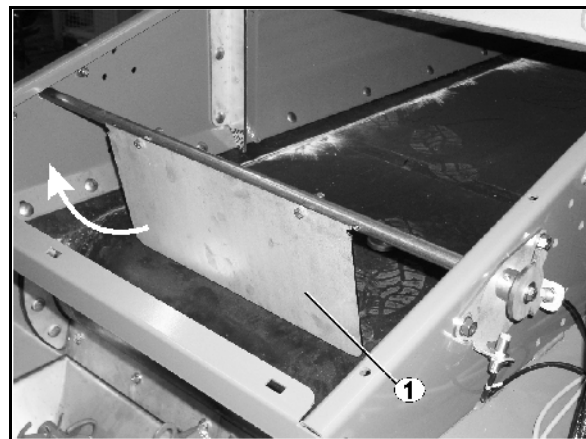


Fig. 82

Agitator shaft

The agitator shaft is protected against shearing by safety splints. Fit safety splints only as shown (Fig. 83).

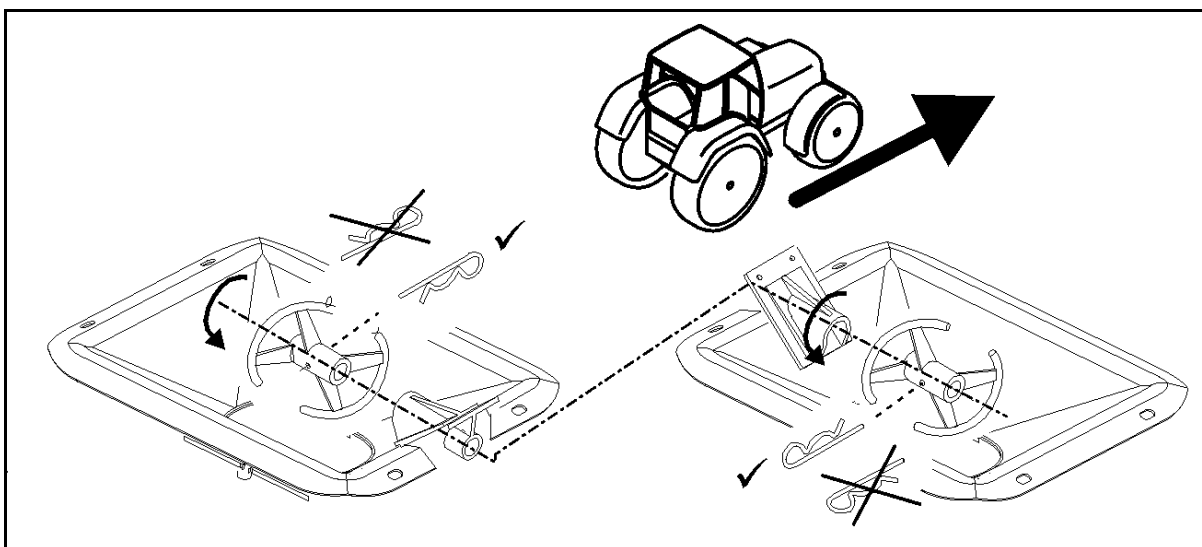


Fig. 83

Check the tension of the drive chain and if necessary readjust using the chain tensioner (Fig. 84/1) in the slotted hole.

Refit the chain guard.

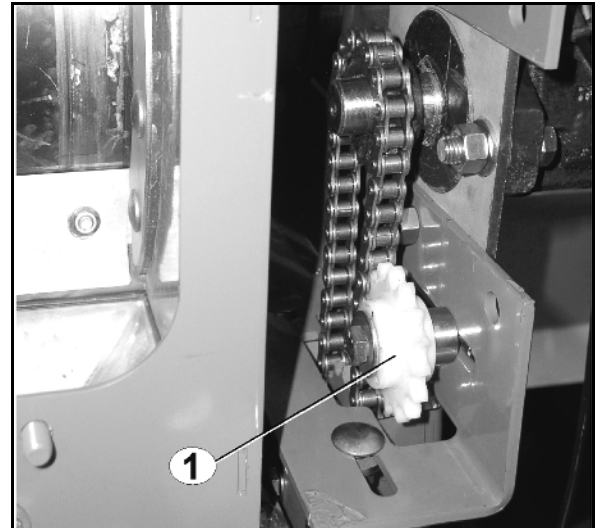


Fig. 84

Scraper

Use of the machine may lead to displacement of the segment plates. Segment plates must be in contact with the floor belt over their entire length. If this is not the case:

1. Release the screws.
2. Adjust the segment plates.
3. Then retighten the screws.

The pressure of the scraper (Fig. 85/1) on the floor belt is set **on both sides** of the machine by means of the adjusting screw (Fig. 86/1):

1. Tighten the nut (Fig. 86/2) on the adjusting screw until the segment plates are in even contact with the floor belt.
2. Tighten the lock nut (Fig. 86/3) with the tool.

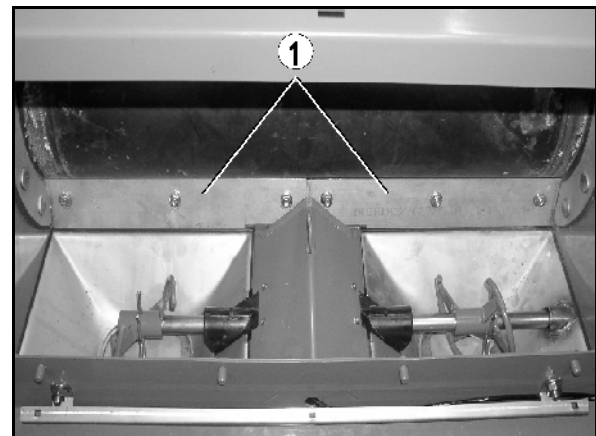


Fig. 85



Excessive pressure of the scraper on the floor belt can lead to increased wear!

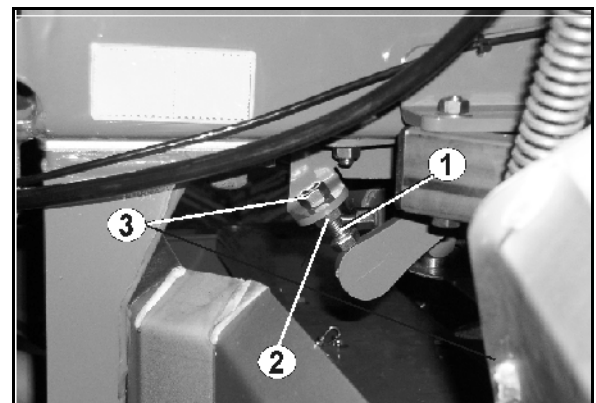


Fig. 86

12.7 Drawbars

**DANGER!**

- Replace damaged drawbars immediately on road safety grounds.
- Repairs may only be carried out by the manufacturing factory.
- For reasons of safety, performing welding and drilling work on the drawbar is prohibited

Yoke bar

The towing eye diameter of the yoke bar, when new, is 40 or 50 mm.

Wear to the towing eye is permissible; this will increase the diameter by up to 1.5 mm.

If wear is greater than this, the wearing bushing on the towing eye must be promptly replaced.

Hitch drawbar

Wear to the towing eye is permissible; this will increase the diameter by up to 1.5 mm.

If wear is greater than this, the ball point coupling on the eye must be promptly replaced.

12.8 Axle and brake



For optimum brake performance with a minimum of wear, we recommend that the brakes on the tractor are balanced with those on the machine. After the service braking system has been run in for a suitable period, arrange for the brakes to be balanced by a specialist workshop.

Have the balancing process carried out before these empirical values are reached if you discover excessive wear on the brake pads.

To avoid problems with the brakes, adjust all vehicles in accordance with EC Directive 71/320 EEC.



WARNING!

- Repair and adjustment work on the service braking system should only be carried out by trained specialist personnel.
- Special care is required for welding, torch cutting and drilling work in the vicinity of brake lines.
- Always carry out a braking test after any adjusting or repair work on the braking system

General visual inspection



WARNING

Carry out a general visual inspection of the brake system. Observe and check the following criteria:

- Pipe lines, hose lines and hose couplings must not be externally damaged or corroded.
- Hinges, e.g. on fork heads, must be properly secured, easy to move, and not worn out.
- Ropes and cables
 - must be properly run.
 - may not have any visible cracks.
 - may not be knotted.
- Check the piston stroke on the brake cylinders, and adjust as necessary.
- The air reservoir must not
 - move around in the tensioning belts.
 - be damaged.
 - show any outward signs of corrosion damage.

Checking the brake drum for dirt

1. Unscrew the two cover plates (Fig. 87/1) on the inside of the brake drum.
2. Remove any dirt and plant debris which may have entered the drum.
3. Refit the cover plates.



CAUTION

Dirt entering the drums may be deposited on the brake pads (Fig. 87/2) and thus appreciably reduce brake performance.

Risk of accident.

If dirt is discovered in the brake drum, the brake pads must be inspected by a specialist workshop.

For this to happen, the wheel and brake drum must be removed.

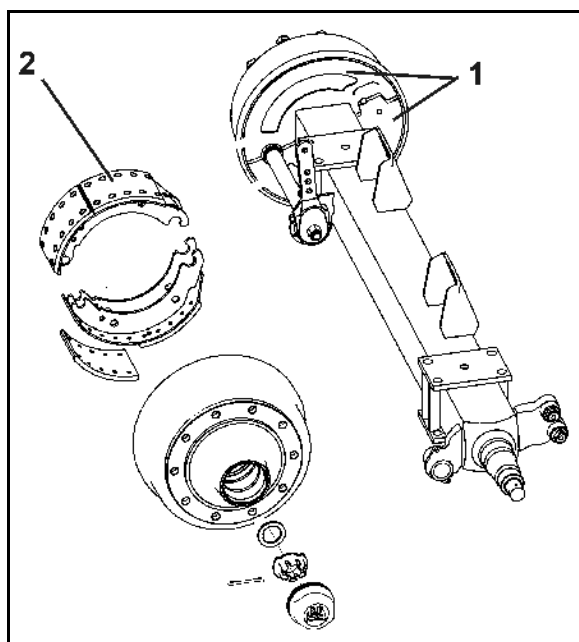


Fig. 87

Checking play on wheel hub bearings

1. To check the play on wheel hub bearings, raise the axle until the wheels turn freely (Fig. 88).
2. Release the brake.
3. Place a lever between the tyre and the ground and check the play.

If bearing clearance can be detected:

Adjust the bearing clearance

1. Remove the dust cup or hub cap.
2. Remove the lynch pin from the axle nut.
3. Tighten the wheel nut while turning the wheel at the same time until the wheel hub is lightly braked as it turns.
4. Turn the axle nut back to the next available split pin hole. If it is already over a hole, turn it to the next hole (max. 30°).
5. Fit the lynch pin and bend it slightly open.
6. Top up the dust cap with high melting point grease and drive it into, or screw it onto the wheel hub.

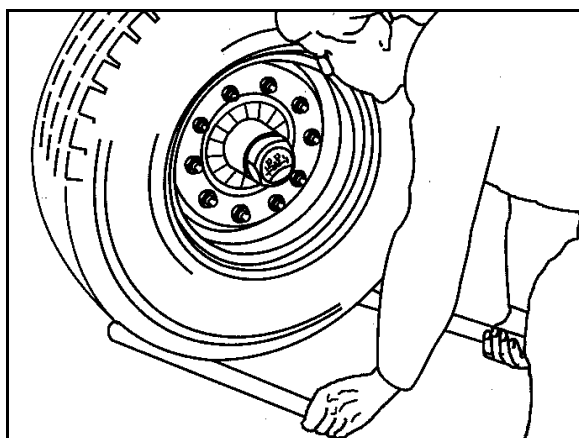


Fig. 88

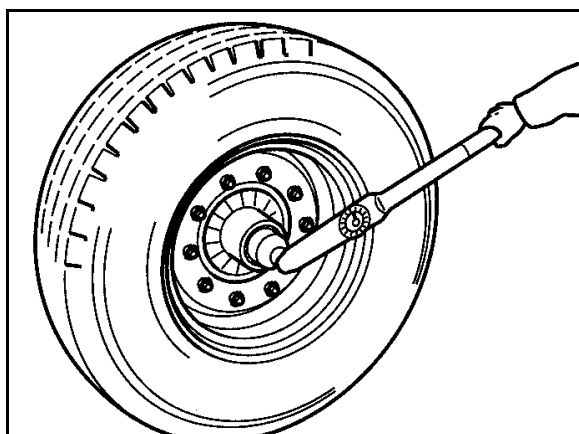


Fig. 89

Brake pad check

Open the inspection hole (Fig. 90/1) by pulling out the rubber stopper (if present).

At a residual thickness

a: for riveted pads 5 mm
(N 2504) 3 mm

b: for adhesive pads 2 mm

the brake pad must be replaced.

Reinsert the rubber tab.

Brake adjustment

Depending on use, the wear and function of the brakes must be constantly checked and, if necessary, readjustment must be carried out. Readjustment is required after using approx. 2/3 of the max. cylinder stroke for emergency braking. To do this, jack up the axle and secure it against unintended movement.

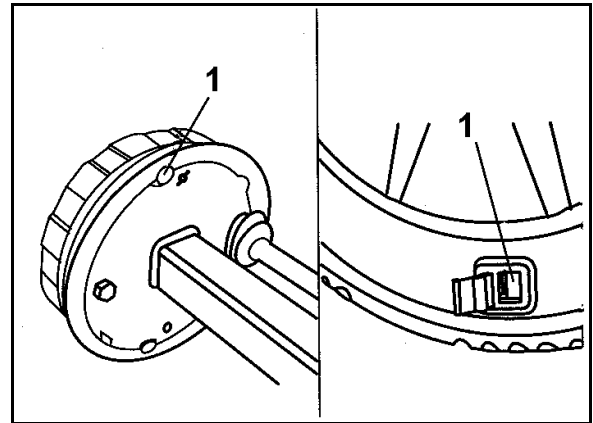


Fig. 90

Adjusting the linkage adjuster

Move the linkage adjuster by hand in the pressure direction (Fig. 92). If the free travel of the long-stroke diaphragm cylinder pressure rod is max. 35 mm, the wheel brake must be readjusted.

Adjustments are made using the readjustment hexagon bolt on the linkage adjuster. Set free travel "a" to 10-12 % of the connected brake lever length "B", e.g. lever length 150 mm = free travel 15 – 18 mm.

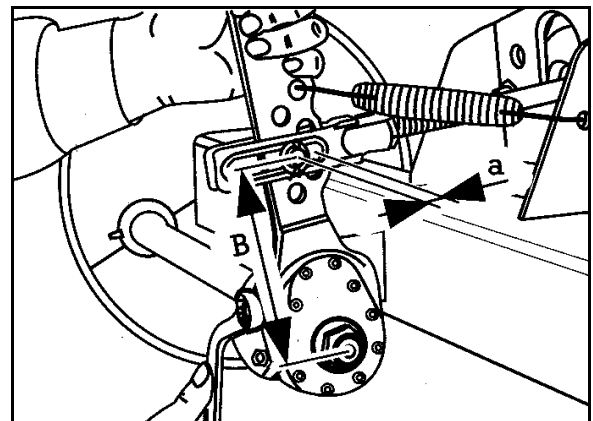


Fig. 91

Adjusting the automatic linkage adjuster

Basic settings are made in the same way as for the standard linkage adjuster. Readjustment occurs automatically at a cam rotation of approx. 15°.

The ideal lever position (which cannot be altered owing to the attachment of the cylinder) is approx. 15° before perpendicularity, and the same in the actuation direction.

Checking the function of the automatic linkage adjuster

1. Remove the rubber stopper cap.
2. Slacken the adjusting screw (arrow) with a ring spanner (Fig. 92) approx. $\frac{3}{4}$ of a turn anti-clockwise. There must be free travel of at least 50 mm for a lever length of 150 mm.
3. Actuate the brake lever several times by hand. This should cause a smooth automatic readjustment; it should be possible to hear the coupling engaging and, on the back stroke, the adjusting screw should turn clockwise slightly.
4. Refit the stopper cap.
5. Lubricate with BPW ECO_Li91 special high melting point grease.

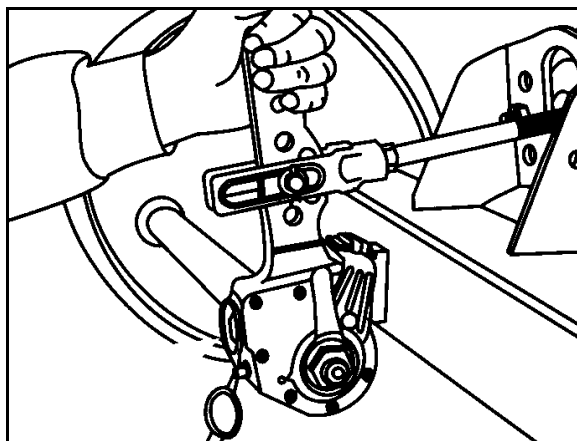


Fig. 92

Adjusting the S3008 RAZG expanding lever brake

1. Tension lever system for ramp device and for releasing the hand brake lever.
 2. Tighten the regulating screws on the wheel brakes in the direction of the arrow, using a screwdriver, until the wheel is hard to turn in the direction of travel.
 3. Turn the regulating screw back until a braking effect can no longer be felt when the wheel turns forwards.
 4. Reinstall the tension lever system for ramp device and adjust it so that it is free from play.
 5. As a test, apply the parking brake slightly and use the same braking torque (in the direction of travel) to check the wheels on the left and right.
- Inspection hole (Fig. 93/1)

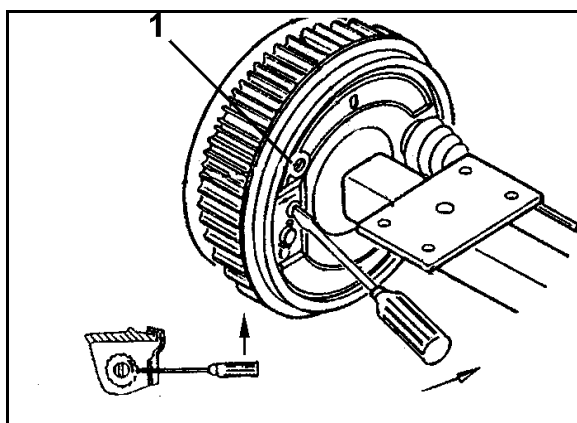


Fig. 93

Draining the air reservoir



Drain the air reservoir every day.

Fig. 94/...

- (1) Air reservoir
 - (2) Tensioning belts
 - (3) Drainage valve
 - (4) Test connection for pressure gauge
1. Pull the drainage valve (Fig. 94/3) in a sideways direction using the ring until no more water escapes from the air reservoir (Fig. 94/1).
- Water flows out of the drainage valve (Fig. 94/3).
2. Unscrew the drainage valve (Fig. 94/3) from the air reservoir and clean the reservoir if there are signs of dirt.

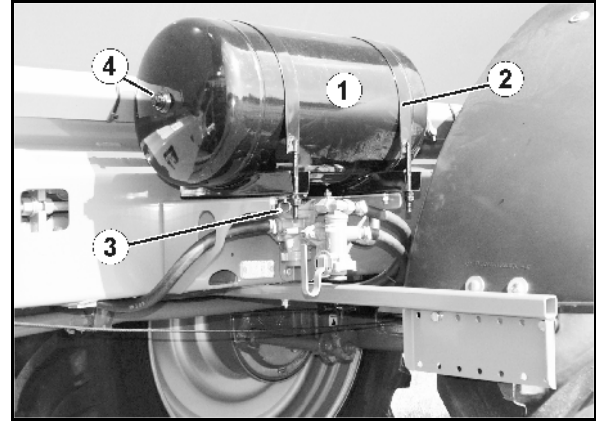


Fig. 94

Line filter



- Change damaged filter inserts.

1. Press together the locking piece (Fig. 95/1) on the two lugs.
2. Remove the locking piece with O-ring, pressure spring and filter insert.
3. Clean (rinse out) the filter insert with petrol or thinner and blow dry with compressed air.
4. Press together the locking piece (Fig. 95/1) on the two lugs.
5. Insert the locking piece with O-ring, pressure spring and filter insert.

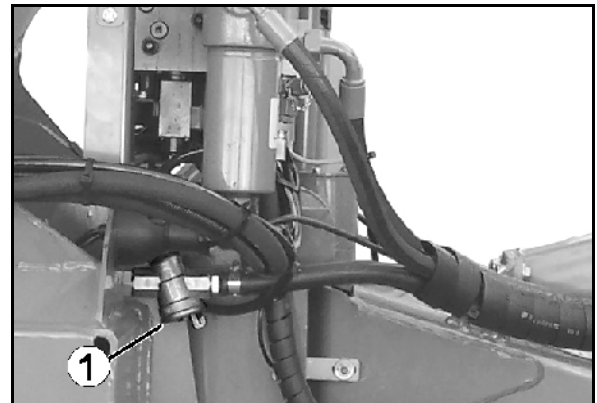


Fig. 95



When inserting the locking piece, make sure that the O-ring is not twisted in the guide slot.

12.8.1 Inspection instructions for the dual circuit service brake system

1. Leak tightness check

1. Check all connections, pipe lines, hose lines and screw connections for leak tightness.
2. Remedy any leaks.
3. Repair any areas of chafing on pipes and hoses.
4. Replace porous and defective hoses.
5. The dual-circuit service brake system may be considered leak-proof if the drop in pressure is no more than 0.15 bar after 10 minutes.
6. Seal any leaking areas or replace leaking valves.

2. Checking the pressure in the air reservoir

Connect a pressure gauge to the test connection on the air reservoir.

→ Set value 6.0 to $8.1 + 0.2$ bar

3. Checking the brake cylinder pressure

Connect a pressure gauge to the test connection on the brake cylinder.

→ Set value: with brake not applied 0.0 bar

If an ALB regulator is installed, the values are checked in line with the information on the Haldex ALB plate.

4. Visual inspection of the brake cylinder

1. Check the dust collars or bellows for damage.
2. Replace damaged parts.

5. Joints on brake valves, brake cylinders and brake linkages

Joints on brake valves, brake cylinders and brake linkages must move freely. Grease or lightly oil, if necessary.

12.9 Parking brake



On new machines, the brake cables of the parking brake may stretch. Readjust the parking brake,

- if three quarters of the spindle tensioning distance is required to firmly apply the parking brake.
- if you have just fitted new brake pads.

When carrying out maintenance on the brake system, comply with the chapter "Safety information for the operator", page 23.

Adjusting the parking brake



When the parking brake is off, the brake cable must be slightly slack (even if the air-sprung suspension is raised to the maximum or fully lowered). However, the brake cable must not rest or chafe against other parts of the vehicle.

1. Release the hose clamps.
2. Shorten the brake cable as appropriate and retighten the hose clamps.
3. Check for the correct braking effect from the parking brake when applied.

12.10 Tyres / wheels



- **Required tightening torque for wheel nuts or bolts:** 510 Nm
- **Tyre air pressure:** See page 38



- Regularly check the
 - wheel nuts for firm seating.
 - tyre air pressures.
- Only use the tyres and wheels which we have specified (see page 38).
- Repair work on tyres must only be carried out by specialists using suitable fitting tools.
- Installing tyres requires sufficient knowledge and proper fitting tools.
- Use the jack only at the jacking points indicated.

12.10.1 Tyre air pressure



CAUTION

There is a risk of tyres bursting when tyres are pumped up and if tyre air pressure is too high.



- The required tyre air pressure is dependent on
 - tyre size.
 - tyre carrying capacity.
 - forward speed.
- The operational performance of the tyres is reduced
 - by overloading.
 - if tyre air pressure is too low.
 - if tyre air pressure is too high.



- Check tyre air pressure regularly when the tyres are cold, i.e. before starting a run.
- The difference in pressure between the tyres on one axle must be no greater than 0.1 bar.
- Tyre air pressure can be raised by up to 1 bar after a fast run or in warm weather. Tyre air pressure should on no account be reduced as it is then too low when the tyres cool down.

12.10.2 Fitting tyres



- Remove any instances of corrosion from the wheel rim seating surfaces before fitting a new / another tyre. Corrosion can cause damage to the wheel rims when the vehicle is in operation.
- When fitting new tyres, always use new valves for tubeless tyres or new inner tubes.
- Always fit the valves with valve caps which have a gasket insert.

Fitting tyres:

To jack up the machine for tyre changes, place the jack at the jacking points indicated (Fig. 96/1).

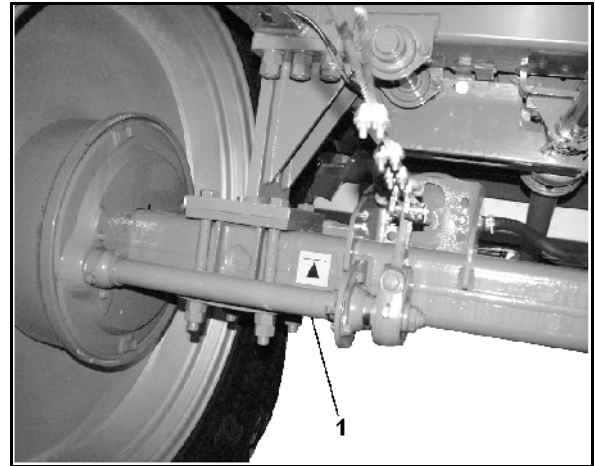


Fig. 96

12.11 Hydraulic system



WARNING

Risk of infection through the high pressure hydraulic fluid of the hydraulic system entering the body!

- Only a specialist workshop may carry out work on the hydraulic system.
- Depressurise the hydraulic system before carrying out work on the hydraulic system.
- When searching for leak points, always use suitable aids.
- Never attempt to plug leaks in hydraulic hose lines using your hand or fingers.

Escaping high pressure fluid (hydraulic fluid) may pass through the skin and ingress into the body, causing serious injuries!

If you are injured by hydraulic fluid, contact a doctor immediately. Risk of infection!



WARNING

Danger of unintentional contact with hydraulic fluid!

Please take the following first-aid measures:

- Following inhalation:
 - No special action required.
- Following contact with the skin:
 - Wash off with plenty of soap and water.
- Following contact with the eyes:
 - Rinse eyes for several minutes under running water, holding the eyelid open.
- Following ingestion:
 - Seek medical assistance.



- When connecting the hydraulic hose lines to the hydraulic system of connected machines, ensure that the hydraulic system is depressurised on both the drawing vehicle and the trailer.
- Ensure that the hydraulic hose lines are connected correctly.
- Regularly check all the hydraulic hose lines and couplings for damage and impurities.
- Have the hydraulic hose lines checked at least once a year by a specialist for proper functioning.
- Replace the hydraulic hose lines if it is damaged or worn. Only use original **AMAZONE** hydraulic hose lines.
- The hydraulic hose lines should not be used for longer than six years, including any storage time of maximum two years. Even with proper storage and approved use, hoses and hose connections are subject to natural ageing, thus limiting the length of use. However, it may be possible to specify the length of use from experience values, in particular when taking the risk potential into account. In the case of hoses and hose lines made from thermoplastics, other guide values may be decisive.
- Dispose of old oil in the correct way. If you have problems with disposal, contact your oil supplier.
- Keep hydraulic fluid out of the reach of children!
- Ensure that no hydraulic fluid enters the soil or waterways.

12.11.1 Labelling hydraulic hose lines

The valve chest identification provides the following information:

Fig. 97/...

- (1) Manufacturer's labels (A1HF)
- (2) Date of manufacture of the hydraulic hose lines (02 04 = February 2004)
- (3) Maximum approved operating pressure (210 bar).

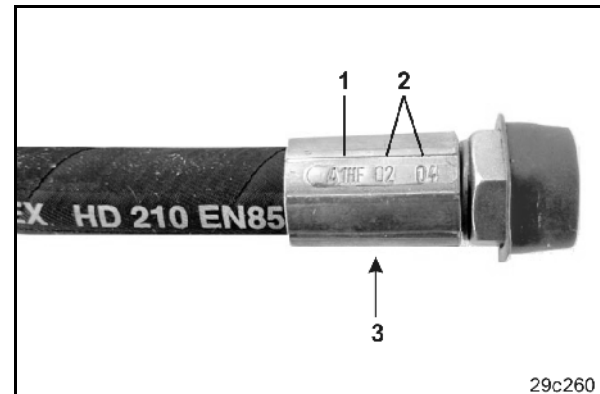


Fig. 97

12.11.2 Maintenance intervals

- **After the first 10 operating hours, and then every 50 operating hours**
 1. Check all the components of the hydraulic system for tightness.
 2. If necessary, tighten screw unions.

Before each start-up:

1. Check hydraulic hose lines for visible damage.
2. Eliminate any scouring points on hydraulic hose lines and pipes.
3. Replace any worn or damaged hydraulic hose lines immediately.

12.11.3 Inspection criteria for hydraulic hose lines



For your own safety and in order to reduce pollution, ensure the following inspection criteria.

Replace hoses if the respective hose fulfils at least one of the following criteria:

- Damage to the outer layer up to the ply (e.g. scouring points, cuts, cracks).
 - Brittleness of the outer layer (crack formation of the hose material).
 - Deformations which do not match the natural shape of the hose. Both in a depressurised and pressurised state or when bent (e.g. layer separation, bubble formation, pinching, bends).
 - Leak points.
 - Installation requirements not complied with.
 - Life span of 6 years has been exceeded.
- The date of manufacture of the hydraulic hose line on the assembly is decisive for determining these six years. If the date of manufacture on the assembly is "2004", then the hose should not be used beyond February 2010. See also "Labelling of hydraulic hose lines".



Common causes for leaking hoses / pipes and connection pieces include:

- missing O-rings or seals
- damaged or badly fitting O-rings
- brittle or deformed O-rings or seals
- foreign bodies
- badly fitting hose clips

12.11.4 Installation and removal of hydraulic hose lines



Use

- only genuine **AMAZONE** replacement hoses. These hoses stand up to chemical, mechanical and thermal loads.
- hose clips made from V2A for fitting hoses, as a rule.



When installing and removing hydraulic hose lines, always observe the following information:

- Ensure cleanliness. • Always install the hydraulic hose lines to ensure the following in all operating conditions
 - There is no tension, apart from the hose's own weight.
 - There is no possibility of jolting on short lengths.
 - Outer mechanical influences on the hydraulic hose lines are avoided.

Use appropriate arrangements and fixing to prevent any scouring of the hoses on components or on each other. If necessary, secure hydraulic hose lines using protective covers. Cover sharp-edged components.

- The approved bending radii may not be exceeded.



- When connecting a hydraulic hose line to moving parts, the hose length must be appropriate so that the smallest approved bending radius is not undershot over the whole area of movement and/or the hydraulic hose line is not overtensioned.
- Fix the hydraulic hose lines at the specified fixing points. There, avoid hose clips, which impair the natural movement and length changes of the hose.
- The coating of hydraulic hose lines is not permitted.

12.11.5 Mounting hose fittings with O-rings and sleeve nuts

1. First, tighten the sleeve nut manually.
2. Then, use the spanner to tighten the sleeve nut at least $\frac{1}{4}$ to a maximum of $\frac{1}{2}$ turn.



You must not tighten screw unions with O-rings as tight as those with compression rings.

If you tighten the sleeve nut tighter than specified, the cone-shaped screw union may break (in particular at the welded pin on the hydraulic cylinder).

12.12 Hydraulic fluid filter

The oil filter (Fig. 98/1) with its contamination indicator (Fig. 98/2) indicates the contamination level of the hydraulic fluid.



- Check the contamination indicator on a regular basis to ensure the proper functioning of the hydraulic system and your components.
- Replace the oil filter immediately when a red ring is visible instead of the green one.

After replacing the oil filter, press the contamination indicator back into place.

→ Green ring again visible.



CAUTION

Danger of injury from escaping hydraulic fluid at high pressure!

Only work on the hydraulic system when it is depressurised.

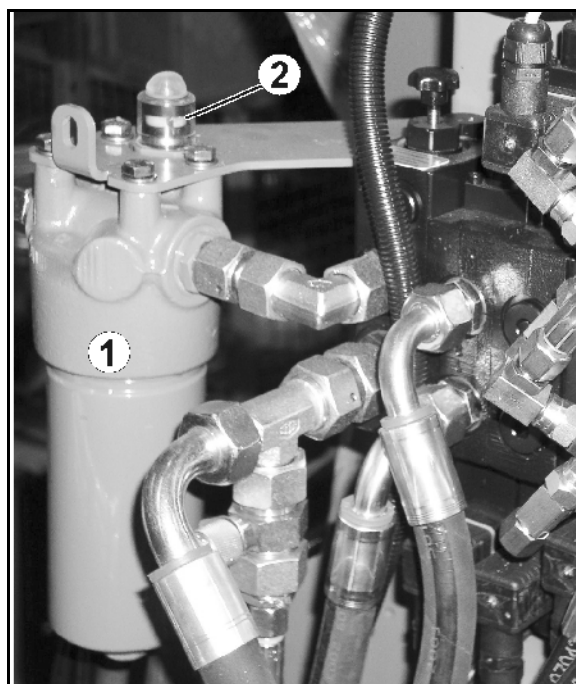


Fig. 98

12.13 Cleaning the solenoid valves

To eliminate impurities from the solenoid valves, they must be flushed through. This may be necessary if deposit prevent the shutter fully opening or closing.

1. Unscrew the magnetic cap (Fig. 99/1)
2. Remove the solenoid (Fig. 99/2)
3. Unscrew the valve rod (Fig. 99/3) with valve seats and clean with compressed air or hydraulic fluid.



CAUTION

Danger of injury from escaping hydraulic fluid at high pressure!

Only work on the hydraulic system when it is depressurised.

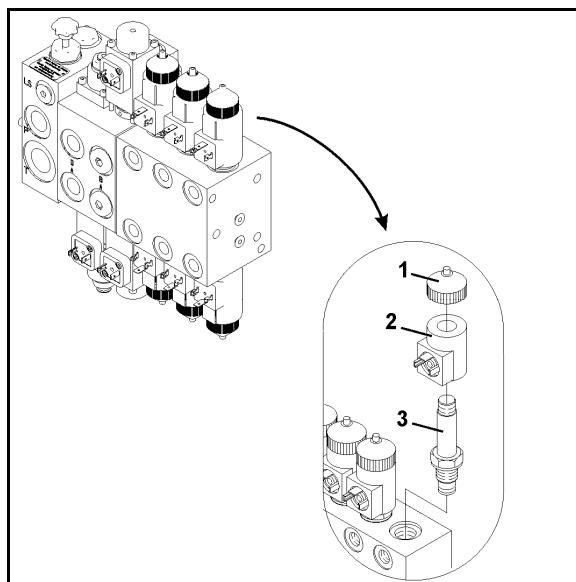


Fig. 99

12.14 Gearbox

Transmission fluid: 090 I SAE

- There is no need to change the oil.
- Fill levels: belt conveyor gear mechanism with hydraulic drive
1 l

12.15 Electric lighting system



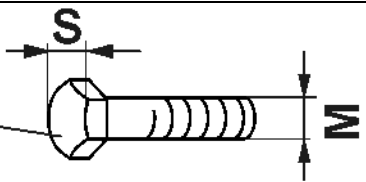
WARNING

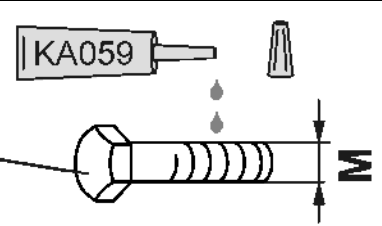
Replace defective bulbs immediately so that you do not pose a hazard to other motorists and cyclists!

Replacement of light bulbs:

1. Unscrew the sight glass.
2. Remove the defective bulb.
3. Insert the replacement bulb (ensure that the voltage and wattage are correct).
4. Insert and screw on the sight glass.

12.16 Screw tightening torques

<div style="display: flex; align-items: center;"> <div style="border: 1px solid black; padding: 5px; margin-right: 10px;"> 8.8 10.9 12.9 </div>  </div>				
M	S	Nm		
		8.8	10.9	12.9
M 8	13	25	35	41
M 8x1		27	38	41
M 10	16 (17)	49	69	83
M 10x1		52	73	88
M 12	18 (19)	86	120	145
M 12x1.5		90	125	150
M 14	22	135	190	230
M 14x1.5		150	210	250
M 16	24	210	300	355
M 16x1.5		225	315	380
M 18	27	290	405	485
M 18x1.5		325	460	550
M 20	30	410	580	690
M 20x1.5		460	640	770
M 22	32	550	780	930
M 22x1.5		610	860	1,050
M 24	36	710	1,000	1,200
M 24x2		780	1,100	1,300
M 27	41	1,050	1,500	1,800
M 27x2		1,150	1,600	1,950
M 30	46	1,450	2,000	2,400
M 30x2		1,600	2,250	2,700

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M	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20	M22	M24
Nm	2.3	4.6	7.9	19.3	39	66	106	162	232	326	247	314

13 Hydraulic diagram

1. Control unit 1 (hose marking 1 x red)
2. Pressureless return flow (hose marking 2 x red)
3. Oil filter
4. Test connection
5. Load-sensing control line
6. System converting bolt
7. Tarpaulin open
8. Hydraulic shutter, right
9. Hydraulic shutter, left
10. Tarpaulin closed
11. Limiter
12. Hydromotor, floor belt (pressure side > 150 bar)
13. Hydromotor, floor belt (return flow)
14. Hydromotor, agitator shaft (return flow)
15. Hydromotor, agitator shaft (pressure side)

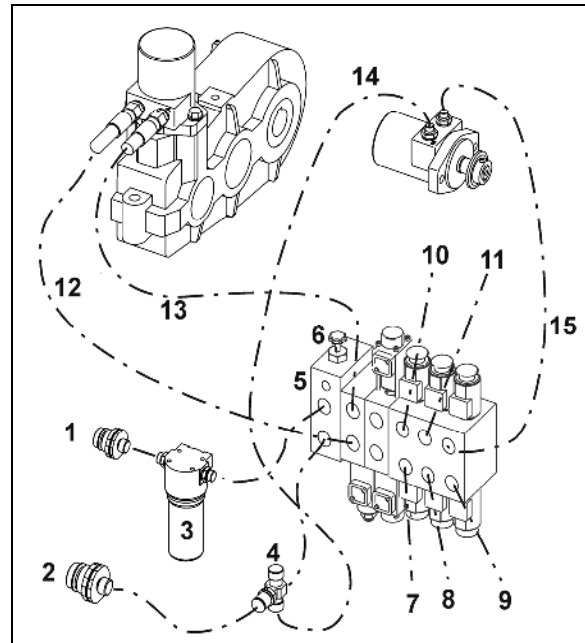


Fig. 100



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